

Teaching The Sick:
A Manual Of
Occupational Therapy
And Reeducation
(1919)



George Edward Barton

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Teaching *the* Sick

A Manual of
Occupational Therapy
and Re-education

By

George Edward Barton, A. I. A.

Director of Consolation House
President Consolation House Convalescent Club, Inc.

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Philadelphia and London

W. B. Saunders Company

1919

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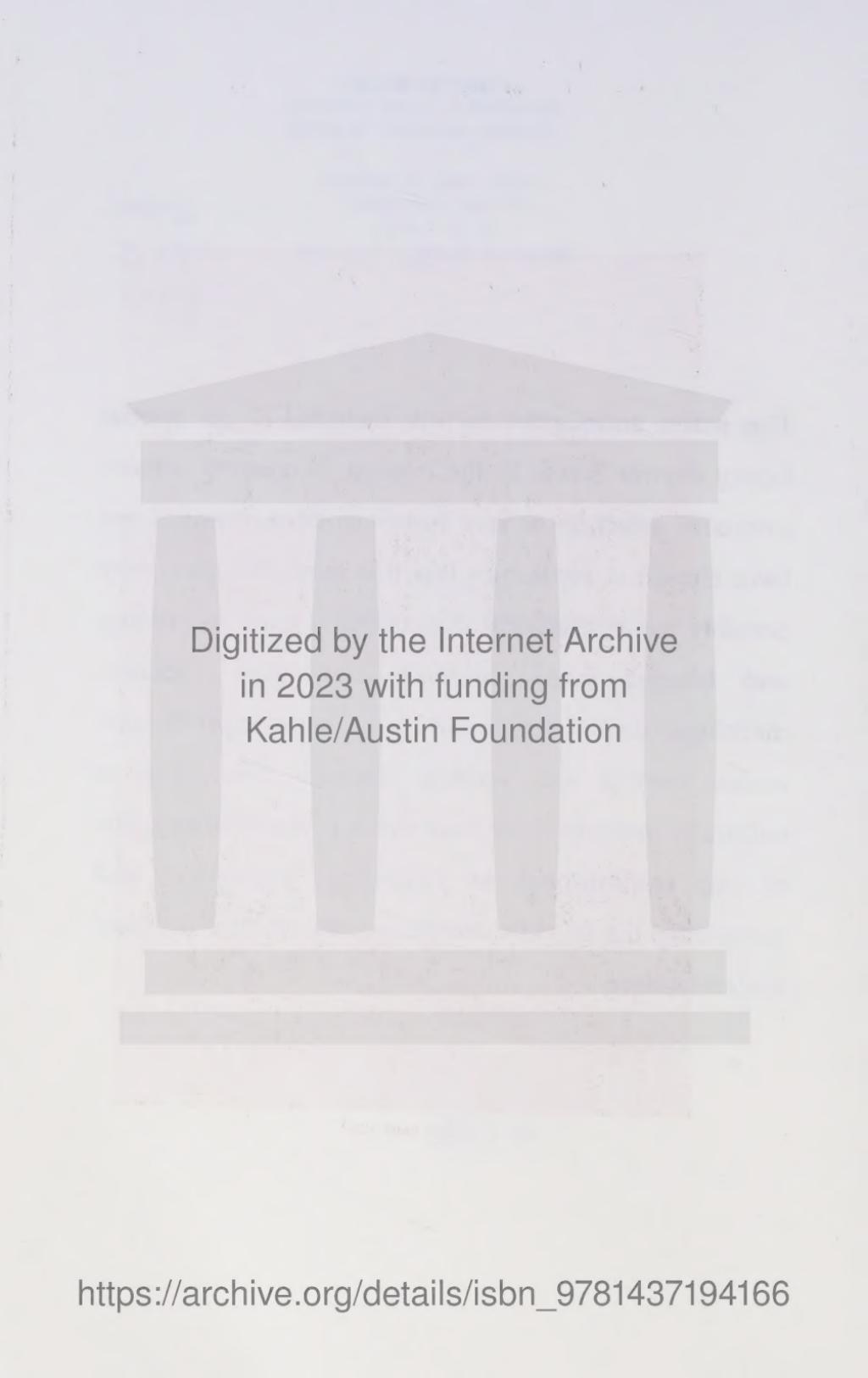
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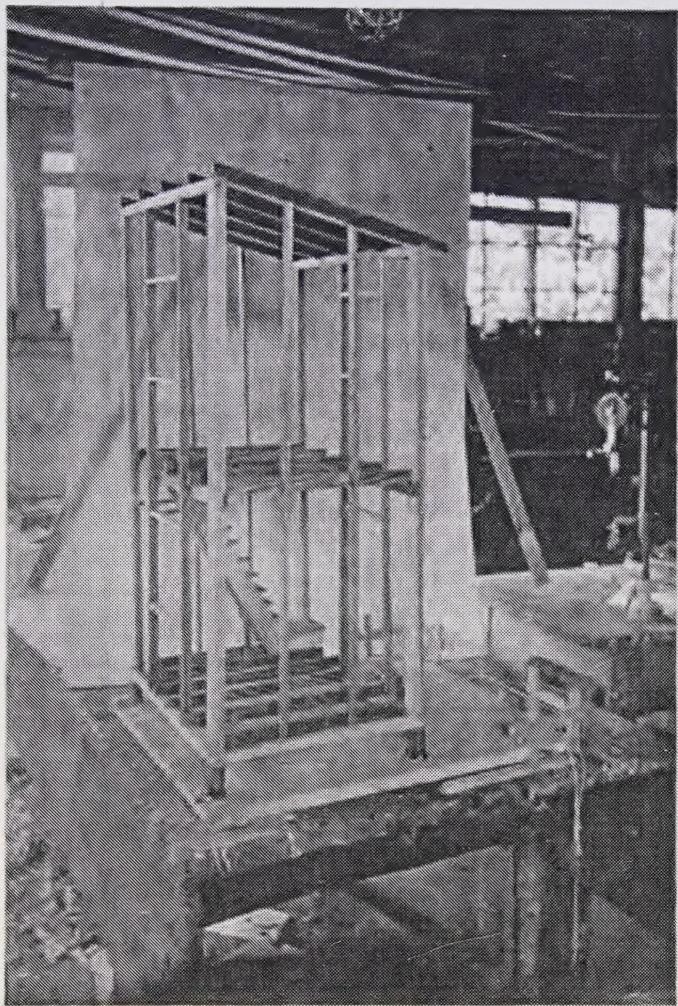
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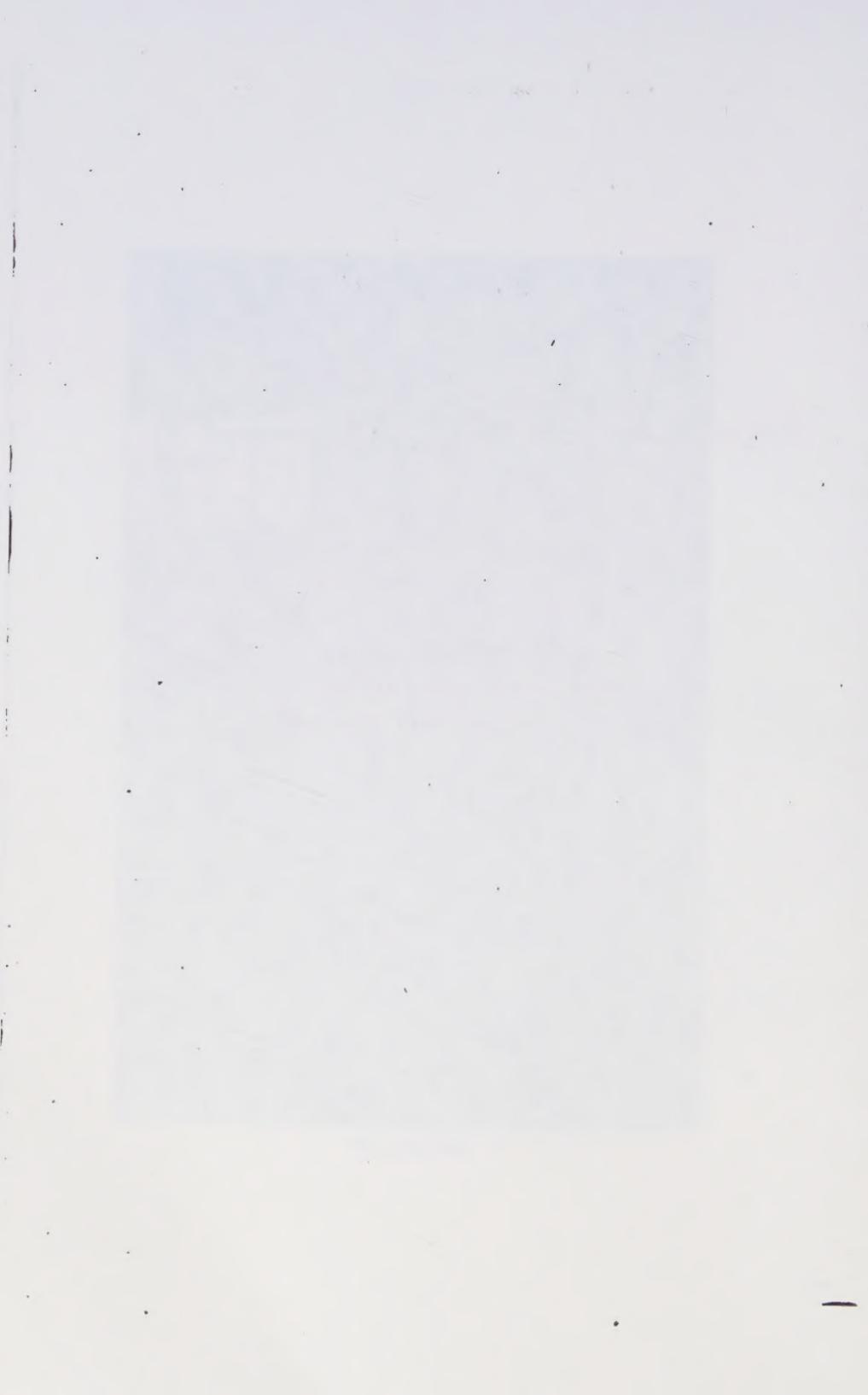


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(See page 128.)



TO ISABEL GLADWIN BARTON
My Wife, Helpmeet, and Collaborator



PREFACE

BECAUSE the number of dependents which can be maintained by any community necessarily rests upon that proportion of the population which is not dependent—the producers; because the great war has so rapidly increased the number of dependents and decreased the number of producers as to make this fact apparent not only to the student but also to the common business man, interest in the subjects of Occupational Therapy and Re-education has developed so rapidly that it is impossible for but few to keep pace with the new ideas, methods, and developments contained in those subjects.

Only those individuals who are devoting their entire time and attention to teaching the sick can have an adequate idea of what is included in the subject and of the tremendous complexities involved.

Many people, recognizing the need of teachers for the sick, are filled with the sincere desire to do the work. Because those people, upon the attempt to do practical work, discover immediately obstacles apparently insurmountable; because there are almost no textbooks which meet the requirements of such prospective workers, the author has ventured to prepare this book.

Its purpose is to deal not with the many sociologic problems involved in the subject; not with the spectacular and highly involved instruments, devices, and methods which are already in quite general use; not with directions of how to make small articles, the product of the trades and crafts; not to theorize upon the possibilities or impossibilities or upon the value of this or that particular handicraft: its purpose is to give a clear, concise, and truthful account of what has been actually accomplished in the way of Occupational Therapy and Re-education—not only the accomplishments of the author himself for his own body but also what that work has actually proved for others, both patients and pupils—moreover, to do that not only in such a manner that the means

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by which his own Re-education, both physical and spiritual, was accomplished will be clear but also in such a way that it will be possible for others to accomplish a like beneficial result by the same methods.

Nor will this book be devoted exclusively to the needs of war. The needs of war, though great, have not exceeded the needs of peace. In other words, it is improbable that more will be maimed, blinded, or crippled at the front than suffer annually from accidents in industry.

If our industrial life continues even as before the war, it is safe to assume that the proportion of industrial accidents will not be greatly decreased. The highest authority¹ on the subject has given the number of industrial accidents as 735,000 annually. Assuming then an annual number of one-half to three-quarters of a million, it is for the benefit of these that this book is written.

GEORGE EDWARD BARTON.

CLIFTON SPRINGS, NEW YORK,

July, 1919.

¹Federal Commission on Industrial Relations.



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THE LARGER PROBLEM



TEACHING THE SICK

THE LARGER PROBLEM

OUR subject—teaching the sick—necessarily presents two sides: one, that of education; the other, that of therapeutics. For, surely it were idle to undertake to teach a sick man by any method, in any subject, other than such as would tend to recovery from his sickness: surely it would be an absurdity to so instruct a sick man, or to instruct him in such subjects, that, when he was proficient in the subjects taught, he was also dead. In other words, instruction for the sick man implies necessarily such instruction as will assist him to a condition of *not sick*.

Therefore, we must assume as a part of our premise not only that any instruction given to the sick man should and must involve such beneficial ideas, energies, and developments as will tend to an understanding of the subject

taught, but also that the very process of learning, and the very energizing toward the assimilation of the knowledge presented for absorption shall be so developed as to make the sick man better by his very effort to learn and to assimilate.

If it is possible for a man to fall or to be sick as the result of his occupation—if, in other words, there is such a condition as that covered by the expression *Occupational Disease*—then, indeed, is the man foolish who does not get well doing something. For, if it is possible to get sick doing something, surely it is only reasonable to desist from getting sick by doing something, and the logical remedy is to keep well by doing something. For, if it is possible to get sick by occupation, it must be equally possible to get well by occupation. This apparently simple statement is the very foundation, the very essence of the subject which we have under consideration.

This is a poor time for a patriotic American to even quote a German; and yet the words of one of the foremost German physicians, showing as they do somewhat of the conditions and endeavors of our enemies, must not be over-

looked. He—Dr. Biesalski—has said that *there are no more cripples except of the will.*

For too long our civilization has merely pitied the cripple, has considered him as being in a class by himself. The cripple is, indeed, in a class by himself, but is by no means to be considered merely as an object of pity. The time has come when society must not only admit its duties, its obligations to the members of this class in itself, but also must allow those members—coerce them if necessary¹—to fulfil the obligations involved in their being members of this class by itself—the obligations of self-respect, of self-support, and the obligation of proving that, though maimed, they are at least not crippled in their wills.

The sudden and tremendous need of assistance for cripples has produced numberless applicants for the position of helpers for them; but because of its non-development and obscurity there is but little definite information regarding the subject of how the sick or crippled can best be helped, and to what end they

¹ Mr. Joe F. Sullivan, foremost authority on cripples in the United States, says such is not necessary ("The Unheard Cry," Sullivan. Smith and Lamar, Nashville, Tenn.).

should be helped. Consequently, many of these would-be helpers through ignorance mislead or misdirect the sick man, wasting his time and leading him more often to disappointment than to success.

Also it is difficult for those few, who by experience and practice are able, to teach others to teach the sick man and to lead him back to self-respect and self-support; and this difficulty lies principally in the fact that there is very small common ground which can be used as a base.

There is almost no fixed standard from which and by which successes and failures can be measured. Indeed, there are even few important words or terms exact definitions of which are accepted as accurate by the leaders of the work in the several countries now engaged in the study of the problem.

THERAPEUTIC EFFECTS THE FIRST CONSIDERATION

In the United States, which is far behind the other countries as regards both the amount of work actually accomplished and the number of men who are doing creative work upon the subject, this condition of ignorance is most lament-

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able; it is, furthermore, dangerous, for in the present hectic condition there is no time for the careful, quiet analysis, consideration, and deduction necessary for the satisfactory solution of so obscure and involved a problem.

For instance, the term *Occupational Therapy*, which was first used by the author at a conference of hospital workers called by the Massachusetts State Board of Insanity at Boston, December 28, 1914, has run like a contagion all over the country, with the result that the very meaning of the words used in many cases has been entirely overlooked.

That the reader may have some idea to what an extent this is true and dangerous, the Surgeon-General of the United States at the beginning of the war announced broadcast over the country that Occupational Therapy was to be developed and utilized, and that a large number of teachers would be required. Yet, in the call for Reconstruction Aides issued August 8, 1918, there is no word either definite or implied which makes any knowledge of the sick, or of teaching the sick, or of therapeutics (in any sense) necessary.

The craft teacher, who a year ago considered

herself a teacher of basketry or weaving, now, merely because her pupil is sick, continues to teach the same subject in the same way as before, and calls herself an "Occupational Therapeutist." This not only is an absurdity, but will inevitably cause much unnecessary waste and pain in the future.

Absurd as it sounds to state, it should not be forgotten that *it is the therapeutic benefit of the patient—not that of the teacher—which should be primarily sought.*

It is unreasonable to suppose that an anemic neurasthenic weakling, bored to death with her own life and incapable of firm decisions or of strenuous endeavor, should be able to instill into the mind of the sick man the very qualities which she herself lacks.

It is unreasonable to suppose that any individual, no matter how successful in the teaching of well people, can be able, without actual experience with pain, sickness, and disability, to teach the sick man how to overcome difficulties of which she is ignorant.

For a doctor or an occupational director to allow or to prescribe the use of "a hammer" is every bit as inadequate, childish, unprofessional,

and absurd as it would be for a doctor to tell an ignorant woman to give her baby a little stimulant, leaving it to the mother whether that stimulant shall be malted milk or strychnin—and she to determine the dosage.

“A hammer”—so far as work with the sick is concerned—is an entirely inadequate term. To be sure, the word as commonly used would imply the carpenter’s or joiner’s hammer; but, even of this, in one catalogue there are listed no less than nine different types of joiners’ hammers, and of these, subdivisions of weight ranging from 2 ounces (“brad”) to 2 pounds.

“A hammer” by no means covers the subject any more than either malted milk or strychnin includes all of the other stimulants. The size, shape, weight, motions involved, muscles and joints affected by the file-cutter’s hammer are as unlike those of the chain-maker’s or of the blacksmith’s as is the jeweler’s hammer from that used by the gold-beater. There is a hammer so small and light that it can be easily affixed to any finger with two elastic bands, and thus satisfactorily perform its function. From this to the sledge-hammer—the use of which in-

volves practically every joint, muscle, and organ in the human body—there lies such a range of possibilities that merely to designate “a hammer” marks either ignorance or too great carelessness for a prescription writer.

It can be no more safely assumed that “the patient will not be so foolish as to endeavor to use a sledge-hammer” than it can be safely assumed that he can be trusted to prescribe his own drugs. Many patients enjoy bringing a strain upon that organ or part which is troubling them. This probably springs from the same intuitive desire, which most people feel, to touch or rub a cold-sore, to inflict more pain upon an aching tooth or a rheumatic joint. Of the two, a patient convalescing from a kidney operation is quite as apt to endeavor to push a full wheelbarrow as to exercise with a garden rake. So often the patient desires to do not the best, but the worst thing, for which he is fitted that it should be accepted as an axiom that *the patient cannot be trusted to select his own occupation.*¹

Neither is the shape nor the weight of a tool the sole consideration when planning a pro-

¹ Occupation for the moment—not future vocation.

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gressive treatment. For instance, if we are to teach a very sick man to be able to use a joiner's hammer later, the first step toward that definite end is not a small or light hammer from which he can progress to a larger and heavier one—indeed, it is not a hammer at all, but a reciprocating drill.¹

Because of the use of the joiner's hammer, for which the patient is to be trained, involves co-ordination to a high degree, and because quite as much co-ordination is required with a light as with a heavy hammer, it is obvious that for training in co-ordination it is advisable to begin with such a tool as will simplify the beginning of training in co ordination. The weight of the hammer marks a difference not of co-ordination, but of strength. For increasing the strength of the arm gradually increased weight of the hammer will be advisable. But by the up-and-down motion of the drill the hand is made to travel in the path of activity as is required in the use of the hammer; and the point of the drill proper, being fixed in the

¹ The reciprocating drill is one made to revolve by downward pressure of the hand, which when released causes the drill to "untwist" and be ready for the next downward pressure.

material, aids and trains the hand to remain in this path of activity. By increasing the size of the drill proper, and the hardness of the material used, greater and carefully graded dosage is easily administered.

The teaching of the sick man is a fundamentally different subject from the teaching of the well man. Indeed, past experience in trade teaching is almost a hindrance rather than a help, because so many of the pedagogic axioms when applied to the sick man not only are not self-evident truths, but are not truths at all.

This subdivision of the whole subject of re-education—teaching methods—in the future, perhaps the imminent future, will be a subject which will require many volumes for its exposition. A few of the other subdivisions—such as the therapeutic value of tools; the economic conditions affected and to be affected by the retraining of the sick; the disposal of their product without interference with the normal world, etc.—will each require fully as many more volumes for their separate exposition.

It should be obvious then that the present is no time for a comprehensive work upon the subject, and that the best that can be expected—

the most that should be attempted—is to expound some of the small parts which constitute one of the great subdivisions.

It cannot be denied, however, that the popular interest in the subject at the present moment is that devoted to the actual needs of the moment; that is, the needs occasioned by the war. Consequently, the subject chosen for exposition should be one directly applicable to the needs of the moment. But, as everything upon the subject now accepted as authoritative undoubtedly will become a part of the foundation of the more permanent structure to be erected after the war, such a subject for immediate exposition should be not only one meeting the needs of the moment, but also one so broad, so comprehensive, and so permanent as to be worthy of perpetuation.

In the teaching of the sick most of the methods used with the normal man fail, for the sick man must often, if not always, begin upon the simplest things, be led through them, and be strengthened by them to do the more difficult ones.

Mechanical drawing, for instance—a most valuable asset even for the farmer—can rarely

be begun by the sick man with the T square, the scale, and the dividers because such demand an amount of concentration, co-ordination, and care—to say nothing of the difficulty of posture—which in most cases are impossible for the sick man. But, fortunately for our subject, with the new problems of education and the many great difficulties, there comes one feature, which, while apparently making confusion worst confounded, in reality simplifies the whole, if only at the outset we accept as an axiom that *beneficial therapeutic effect must always be the first consideration.*

AN UNREGARDED ASSET

It is a fact commonly overlooked that the sick man has one asset of great value which the normal man has not, one which gives him a great advantage over his well brother, one which makes his re-education a possibility from a commercial point of view.

The convalescent has *time*—literally, “time to burn.”

Not only does this simplify the teaching problem through obviating the necessity of making the pupil able to pass a given examination at

a specified date, but it is a most tremendous factor in the later problem of what are possible as profitable vocations, and what can be developed for the patient without interference with the normal trade.

For it should be also borne in mind that the whole standard of his production is unlike that of the normal man's. The true relation of the work of the sick to that of the well man is not that of the percentage of normal labor which the sick man performs; it is the amount of work above zero which has been performed.

Whether the occupation taught the sick be making baby blankets or laborers' brogans, there can be no great improvement in economic conditions if sick men are to sell their products in competition with well men who are assisting in the support of their sick brothers.

In the United States, as in all countries, one of the greatest benefits to the industrial world is the introduction of a new industry. At the present state of industrial activity to suggest new industries for the sick sounds rather like the vague ramblings of pure theory.

At Consolation House, without the expenditure of large amounts of money, without large

buildings and expensive equipment, with almost nothing to work with but an uncrippled will, one new occupation for the sick—a new industry for the United States—has been discovered within four years, with every indication of its being possible for successful development. Surely sufficient time and study will produce others.

Reference has several times been made in the discussion of this subject to “non-competitive occupations.” It has been suggested in more than one brochure upon the subject that the sick man may be instructed and made proficient in the “non-competitive” occupations. The author’s experience of twenty-five years as an architect and a commercial designer has shown but one occupation which could be called non-competitive.

There is in Rome an old man who with his sons still continues to make real vellum apparently without competition.

Most manufacturers are aware of a demand for certain articles which might be included in the output of their plants, for which demand there is an inadequate or no supply. One of the reasons for this is that the manufacture of the articles in question demands an amount of

time which makes them prohibitive under existing conditions.

If the sick man, with time to burn, can be trained to make such articles, not only can the articles be put upon the market in a legitimate way, but this can be done without interference with the normal workman.

What is true of education is also true of re-education, and presumably in about the same proportion. In both there will be found a certain small proportion of pupils whose tastes, inclinations, or natural attributes, whose subnormalities and supernormalities will point so clearly to some definite end that the subjects involved in that end can be immediately selected as the subjects to which the whole education, or re-education, should tend.

The vast majority, however, in school as in after-life, according to the laws of nature, must not tower above their neighbors, and will not be found to possess any supernormal inclinations or abilities.

Therefore, while the one may be recognized at once through some special acuteness of sight or touch or hearing, for instance, and can be re-educated profitably and economically for

some highly specialized trade or art, the vast majority can be trained profitably and economically only in those trades or arts for which there is a demand proportionate to the number employed.

Disregarding the finer and more involved points of economics, the fundamentals of life have been proved by the history of man to be food and protection from the elements. Whatever the political, industrial, or economic conditions under which a man or a nation exists, food and protection from the elements remain constant factors.

It would seem, therefore, that special subjects, however worthy and valuable—such as, for instance, the making of baskets, of artificial limbs, of toys—may easily overcrowd those industries beyond the point at which a worker can make enough to provide himself with food and protection against the elements; and it would appear also that there can be no mistake made in training any number of men and women in such subjects as will assist them to secure sustenance and protection.

Admitting, therefore, the production of food-stuffs, the making of clothes, and the erection

of buildings, such primary arts or trades must be selected for the bedside occupations as can be developed gradually and uninterruptedly until the convalescent is sufficiently strong to approach, and to maintain himself by, those completed subjects in exactly the same way that arithmetic, algebra, and geometry are necessary for success in higher mathematics. But, before it can be determined which one of the fundamentals a given patient is best fitted to select, the bedside occupations and those immediately following them must be selected.

Almost every economist since the beginning of time has offered as a solution of the economic difficulties of his day "an increase in the number of producers." Perhaps at no period of the world's history has there been such need as at present, or have there been so many people (not all economists) who advocate an increase in the number of producers. We reconstructionists forbear to repeat that self-evident fact. Instead, we say:

"Behold, the age has run its course. Complexity has resulted in simplicity. The paradox of this so-called civilization has, like the pollywog, become more simple because its tail

has dropped off. Science has proved its inefficiency—except for dealing death—and is in a fair way to become ‘hoss sense’; it is even possible that Christianity may at last be given a fair trial.”

Now the number of producers must and can be increased by the number of dependents.

One of the most encouraging features of this new subject of re-education is that during these first few years of its growth it has so rapidly insisted upon simplifying itself. In spite of the many methods at once found necessary, the many new tools and instruments without which development could not be made; in spite of the new terms invented to meet conditions hitherto unsuspected; and in spite of the perfectly natural—inevitable—desire to specialize upon the more spectacular phases of work with the maimed and abnormal, the fundamental desire on the part of the leaders in the various countries has been to reduce everything in connection with teaching the sick and crippled to its simplest phase.

The search for what in the past has been ignorantly called the “therapeutic occupations”—as if some might be isolated and transformed

into panaceas for all ills—was almost immediately discontinued; and those subjects, which by their very essence would produce the most healthy and normal labor, were sought for development.

A FRENCH SUGGESTION

Nowhere is this more clearly shown than in a pamphlet (perhaps the most important of any which have yet been published in the world) entitled "Le Dévoir Agricole et les Blessés de Guerre,"¹ by Professor Jules Amar.

In the preface of this M. Fernand David, Minister of Agriculture, says:

"In his very interesting study, M. Amar insists rightly on the necessity of making strong our agricultural education. This is not only the duty of the state to the apprentices, the young soldiers in the economic battle which is waging today and will be waging tomorrow with an especial bitterness. It is not only necessary to teach them a technic, up to date, worthy of our time, but it is also true that the wounded soldiers need a perfect equipment, and a mov-

¹ H. Dunod and E. Pinat, 47-49 Quai des Grands-Augustins, Paris, 1917.

ing force which shall simplify their rural labor and spare their fatigue.

“By all the means at its disposal, the Ministry of Agriculture is trying to *industrialize* the development of the land and to bring the degree of production to the maximum.

“Therefore, the Ministry has given its hearty concurrence to agricultural re-education, and is doing all it can to hold or to bring back to the land the greatest possible number of invalided men. There will be without doubt special legislative measures to assure greater advantages in the social scale for farmers and particularly for the wounded. In France we shall not forget that agriculture is the chief national wealth.

“All our allies are occupied with the same problems.

“Already 12 establishments of re-education among our allies have adopted the scientific method. The United States has long since familiarized itself with it, and the labors of Professor Amar obtained there a success which does honor to our country.

“We wish, for the benefit of the wounded, that this union of knowledge and solidarity,

where America has more solid claims on our gratitude, might be the earnest of a lasting collaboration among the nations who are struggling for Right and Liberty."¹

In the same pamphlet Professor Amar says:

"America, that is to say the United States and Canada, where I have seen my system of re-education spread, are trying to re-adapt quickly the invalided men from rural districts. Italy is working, perhaps with less activity, but there also success is assured by my colleagues, pupils, or friends at Milan, Rome, Naples, Palermo. Portugal is preparing for an equal effort, which nature justifies by her wealth. And as to ourselves, who have always fruitful initiatives, and who estimate nothing so highly as the victorious march of our ideas beyond our frontiers, I am glad to say that we have realized something of our programme and of our hopes. . . .

"It is hard to imagine to what extent our country needs for its prosperity and tranquillity to have agricultural work organized and to have led to it by paths which I shall

¹ Translated by Marguerite Barton.

try to indicate all the invalidated and mutilated men who did rural work before the war, but who now underestimate their power. How many have declared to me that there was not much to hope for from their physical powers, who, later, after having made an effort under competent direction, have not been slow in regaining confidence in themselves, boldness, an *impelling will-power*. . . .

“Return to the land is truly a necessity. The proportion of farmers among the wounded men whom I have had to examine in two years and a half (and the statistics of hospital centers show the same results) rises as high as 60 per cent., composed as follows:

	Per cent.
Amputation of an upper limb.....	6
Amputation of a lower limb.....	12
Disabilities or small mutilations.....	42
Total.....	60

“Now, whether they are mutilated or simply hampered by a slight disability, our farmers seem to obey a command to desert the country and to run toward the mirage of the large cities. The attraction of the cities is all-powerful for them. Why? Most admit frankly: ‘Life,’ they say, ‘is easier in the city crowds; work is more

easily found there, or, failing work, one is less likely to die of hunger.'

"Less fatigue, better conditions, distraction of sight, comfort which one touches on all sides—these are the advantages or, more precisely, the temptations which draw the majority of peasants from the soil. . . .

"It must be added that life in the open air increases organic resistance to infectious germs, since the atmospheric oxygen carried by the blood is the most active agent for disinfecting and repairing living cells. . . .

"So, for our heroic soldiers who have come back wounded, mutilated, or weakened by the debilitating effects of the trenches, nervously exhausted, overtaxed in intelligence and in morale, confusedly haunted by the difficulties of the future—one thing seems to me indispensable: that is, that they soak themselves in surroundings which are peaceful and consoling, free from germs, rich in oxygen. . . .

"To what finer task could they consecrate themselves than that of giving back its fertility to our soil, still vibrating from the violence of the barbarians?

"Nevertheless, having made a special study

of them in the course of an official mission in 1908, I am not ignorant of the difficulties of labor on the land, its painful character in the little farms where, unfortunately, human power is the only power used. And I know that this rude labor is badly paid to the point of appearing unworthy and of turning away from it a youth more eager for instruction, more ambitious, and quite legitimately so—a youth who will soon, if we do not take care, rebel entirely against a kind of occupation where the parents have struggled without profit.

“That is the threatening danger. For lack of special well understood instruction we do not have agricultural apprentices, and for lack of theoretical and practical knowledge, modern methods of culture have not received necessary development. Insufficient is the progress of motoculture in France; little applied science, few machines, almost complete absence of technic and technicians. . . .

“But it appertains to re-education to take account of working conditions in large and small farms, and of the adaptation of the man and the physiological possibilities of his work; to consider utensils and motors of industry; if it

does not consider these things, re-education will cease to fulfil her task of social hygiene and her duty of assisting, under the protection of human solidarity, in the renaissance of the life of the peasant. . . .

“I shall insist especially on the technical knowledge necessary for farm laborers. Not that I think of making wounded men real engineers, but that it seems to me very useful to enrich their experience and to make that experience benefit by discoveries in physics, chemistry, general physiology, and even meteorology, still so uncertain. To know the importance of improvements and artificial manure, the influence of water in regard to methods and times of irrigation, the influence of germs and of worms, rotation of crops, the nature of vegetation is of incomparable use to the workman and to the national productiveness. . . .

“Indeed, the measures which I advocate interest all apprentices in agriculture, and do not concern the wounded soldiers only. But for these another factor enters—that of physiological re-adaptation.

“I have often had to explain myself on this point. The invalided man has suffered a loss

of functional capacity, the measure of which dominates the problem of re-education. If, in any measure whatever, we can remedy this inability by surgical apparatus, still it would be necessary to verify the appropriateness and the results of these pieces of apparatus and to make their use fit the necessities of modern tools and equipment.

“Sometimes, nevertheless, this double convenience cannot be realized. In the little farm where he is employed the patient will lack all implements for motor-farming; he will have to depend on his general instruction, insufficient as it may be, on the strength of his muscles, on his skill in manipulating an artificial member which is far from being perfect.

“Even under such conditions and in spite of so many causes unfavorable to labor, I say that the daily production of invalided men is decidedly appreciable; the deficit rarely reaches 20 per cent., at least if the wound belongs to one of the following categories:

Upper limb	Amputations of arm, leaving an upper stump longer than 13 centimeters. All amputations of the forearm. Mutilations of little finger and third finger (even of both hands); little finger, third, and middle fingers; of middle and index-fingers and last phalange of thumb. Certain ankyloses of shoulder or elbow (angles from 130° to 150°); certain ablations of bone. Stiffness of fingers, but complete mobility of thumb.
Lower limb	Amputation at thigh, leaving stump longer than 10 centimeters. All amputations of leg and foot. Ankylosis of knee (angles from 130° to 150°). Shortening of the limb. . . .

"The impotent or artificial arm can always act at the free end of the tool. . . .

"Lord Shaughnessy, President of the Canadian-Pacific Railway, who is admirably devoting himself to the Canadian works for re-educating the mutilated, recently declared, 'Agriculture is the fundamental industry of all the country. With education and financial aid we ought to make farming so profitable and to improve the social conditions of rural life in such a way that thousands of our soldiers who have a leaning for this career would be attracted to it and succeed in it.' . . .

"Three methods seem to me proper to encourage this return to the land:

"1. To give facilities to invalided men who

wish to establish little farms, by furnishing them with seed and manure and by letting them get the mechanical equipment, and if possible a little farm and a horse. There are so many abandoned farms! In this movement the law about cheap habitations and the law of March 10, 1910, on agricultural loans have opened the way; we must travel it resolutely.

“2. To industrialize the large and medium farms, because they have resources enough to clear the land and improve it or to install apparatus for perfected culture. There will follow a division of labor favorable to placing the invalided. I should be much in favor of the establishment by the state of a large number of farm-schools, where practical and theoretical instruction should be given.

“3. Finally, to extend the propaganda among the wounded, at the hospital, at convalescent stations, and among families. I have spoken here of the part of the institution; but local action of private committees and of the Red Cross would be necessary to teach, to guide, to help the rural workers in the districts to which they go. The committee of rural aid

will assure unity of propaganda and co-ordination of methods throughout the country. . . .

“Good intention, without technical knowledge, is often the teacher of error, and may engender discouragement. Generosity, when it has no visible and useful end, finally hesitates. Charity—I say it once more, for two years I have been denouncing its depressing effect on our mutilated men—charity is not a remedy in the crisis of finding a place. The cause and the only cause of this crisis is the poor readaptation of the invalidated man, too often given over to empiricism. Then the employer does not see the return which he had been led to hope for from the wounded; and the wounded (and this is the most serious of all) cease themselves to believe in the possibility of being re-educated to useful ends.

“I have expressed these ideas in a general form two years ago in a conference organized by the Committee of Assistance to the Mutilated, over which M. Painleve presided. They also govern agricultural re-education. To contradict this would be to deny a principle of science itself—that of being universally true. Let the doctor go thoroughly into it. Let the

educator make clear his own technic, let the farmer be persuaded to abandon a hesitation which is manifestly culpable. Together they can increase the power and wealth of the country, and arouse anew in the human soul that spring of mysterious and incalculable power—the Will."

THE NEED OF THE UNITED STATES

That the position so clearly shown by M. David and Professor Amar has been recognized and accepted as of vital importance in our own country is shown by an article which appeared in the New York World, August 11, 1918,¹ in which Franklin K. Lane, Secretary of the Interior, is reported to have said, among other things, the following:

"And a very large percentage of our men in service," said the Secretary, "will not return to their former employment. They have become rugged adventurers unfitted in many instances for the little pursuits which kept them occupied before. The great outdoors will claim them. They will demand an opportunity to live a

¹ The Problems of Readjustment Which We Must Face When Peace Finally Comes, by Wesley McCormick.

bigger, broader, more meaningful, and more independent life." . . .

"Today," said the Secretary, "we have no such public domain to give away; but we have a wealth of science and an understanding of human needs of far more value than the richest of material gifts. There are uncounted millions of acres in the United States, untilled and untillable today, which could be transformed into the richest of home lands if we care to make the collective adventure. With government co-operation, not with government patronage, every returned soldier who felt inclined to accept it could be given an opportunity to carve out a new, successful, and satisfying career. And incidentally, by adopting this plan, we could increase the national wealth and solve some of our knottiest social problems.

"It has been officially estimated that more than 15,000,000 acres of irrigable lands now remain in the government's hands. Large as the figure may seem, this is only an item in the resources to which I refer. There are seventy or eighty million acres of swamp and overflowed land in the country, most of which is

privately owned, but which, without government action, will always remain worthless. There are, in addition, perhaps 200,000,000 acres of cut-over land, once wooded, but now worthless or almost so, which nothing short of a gigantic national project could reclaim.

"Why not reclaim these lands? Why not transform them into fertile and beautiful homesteads? The war has taught us that we can do so if we will, and it has also taught us the necessity. For the first time in our history we have been faced with the possibility of a shortage of food, and there is no other way to get food except from the land.

"But would the soldiers, back from Europe, be willing to take up farming? Isn't there a danger that they would think of it as exile? Unquestionably the trend of American life has been from the rural to the industrial districts. How could we expect our bravest and best to give up their expectations for life in the cities with the rest of us, when it is so obvious that Americans are losing all taste for the farm?"

"That," the Secretary answered, "is the most decisive argument in favor of a great national movement to encourage farming. Our

population is drifting to the cities at an alarming rate. If we are to remain a self-supporting nation, we must find out why. . . .

"If we are to meet the situation before it becomes a crisis, we must not only turn our attention toward making agriculture pay, in the strictest economic sense, but we must see if the inspirations and attractions of world-life cannot be brought to the farm. I believe they can. I believe the economic and spiritual disadvantages of the farm can both be overcome by the almost magic touch of co-operation."

The above quotation is a most important development, especially if regarded in connection with some of the statements made in the Report of the Commission on Country Life, Senate Document No. 705, 60th Congress:¹

"There has never been a time when the American farmer was as well off as he is today (1910), when we consider not only his earning power, but the comforts and advantages he may secure. Yet the real efficiency in farm life, and in country life as a whole, is not to be measured by historical standards, but in terms of its possibilities. Considered from this point

¹ Reprinted by Sturgis & Walton Company, New York, 1911.

of view, there are very marked deficiencies. There has been a complete and fundamental change in our whole economic system within the past century. This has resulted in profound social changes, and the redirection of our point of view on life. In some occupations, the readjustment to the new conditions has been rapid and complete; in others it has come with difficulty. In all the great series of farm occupations the readjustment has been the most tardy, because the whole structure of a traditional and fundamental system has been involved. It is not strange, therefore, that development is still arrested in certain respects, that marked inequalities have arisen, or that positive injustice may prevail even to a very marked and wide-spread extent. All these difficulties are the result of the unequal development of our contemporary civilization. All this may come about without any intention on the part of any one that it should be so. The problems are nevertheless just as real, and they must be studied and remedies must be found.

“These deficiencies are recognized by the people. We have found, not only by the testi-

mony of the farmers themselves, but of all persons in touch with farm life, more or less serious agricultural unrest in every part of the United States, even in the most prosperous regions. There is a wide-spread tendency for farmers to move to town. It is not advisable, of course, that all country persons remain in the country; but this general desire to move is evidence that the open country is not satisfying as a permanent abode. This tendency is not peculiar to any region. In difficult farming regions, and where the competition with other farming sections is most severe, the young people may go to town to better their condition. In the best regions the older people retire to town because it is socially more attractive, and they see a prospect of living in comparative ease and comfort on the rental of their lands. Nearly everywhere there is a townward movement for the purpose of securing school advantages for the children. All this tends to sterilize the open country and to lower its social status. Often the farm is let to tenants. The farmer is likely to lose active interest in life when he retires to town, and he becomes a stationary citizen, adding a social problem to the town. He

is likely to find his expenses increasing and is obliged to raise rents to his tenant, thereby making it more difficult for the man who works on the land. On his death his property enriches the town rather than the country. The withdrawal of the children from the farms detracts from the interest and efficiency of the country school and adds to the interest of the town school. Thus the country is drained of the energy of youth on the one hand, and the experience and accumulation of age on the other, and three problems more or less grave are created: a problem for the town, a problem for the public school, and also a problem of tenancy in the open country.

"The farming interest is not as a whole receiving the full rewards to which it is entitled, nor has country life attained to anywhere near its possibilities of attractiveness and comfort. The farmer is necessarily handicapped in the development of social life and in the conduct of his business because of his separateness, the small volume of his output, and the lack of capital. He often begins with practically no capital, and expects to develop his capital and relationships out of the annual business itself; and even

when he has capital with which to set up a business and operate it, the amount is small when compared with that required in other enterprises. He is not only handicapped in his farming, but is disadvantaged when he deals with other business interests and with other social groups. It is peculiarly necessary, therefore, that the government should give him adequate consideration and protection. There are difficulties of the separate man, living quietly on his land, that the government should understand."

Numberless quotations of importance by the deepest thinkers of the age could be cited; but it would appear from those given that the best authorities both in France and in the United States are at one in their belief not only that country life needs a fresh impetus and new blood, but also that such may be achieved if the cripples of war can be so taught, influenced, and encouraged that upon the termination of their convalescence they may be returned to the land.

THE CONSOLATION HOSAE METHOD

What is true of the cripples of war is equally true of the cripples of peace; and the latter problem is easier to deal with because there is more time for its consideration.

What must be done for and by the sick man to properly train him to take up and successfully reclaim these abandoned lands?

The following course for the re-education of cripples for the reclamation of waste land is the result not only of the author's experience in teaching the sick, and training teachers of the sick, but of his own personal endeavor to do such work for himself. Without advice or assistance, with his whole left side practically useless so that it was with the greatest difficulty that he could even stand alone, he started out to reclaim a piece of land for seven years idle and useless, and to make such repairs and build such new sheds and poultry houses, etc., as were necessary for his project—that of proving that it could be done. Finally, by repeated experiment and frequent failure, he evolved the following course in progression of exercise and of tools.

While in many instances the reasons for cer-

tain progressions and developments were the result of after-thought and analysis, the fact that the treatment was not only successful in his own case, but has proved of value to many others, and that the methods hereinafter described have been proved by actual experience to be teachable to others, leads the author to believe that the fundamentals of the course are sufficiently proved to be worthy of consideration.

An architect himself, designer of gardens and of furniture, he was, to be sure, well acquainted with the technicalities of many trades, the use of many tools; but, his physical condition rendering it impossible for him to use the tools of scarcely any trade, it became necessary to discover or devise new ways of using them, and to give himself preliminary study and practice in the use of such other tools as would lead to sufficient dexterity in handling the tool in question so as to produce a result of commercial value.

Some of these efforts resulted in very surprising deductions, such as, for instance, that the plane is an excellent exercise for the left knee, and that, for a one-armed man desiring

to use a bit in a ratchet brace, the popliteal space is a satisfactory substitute for his missing hand under certain conditions.

The opinion of a normal man concerning the amount of work which a sick man can do is almost entirely worthless.

Before beginning his own work in a systematic way the author consulted several foremost physicians of the United States in regard to the amount of work advisable for him. While their opinions varied as to the project itself from that of "most dangerous and questionable" to "an absolute absurdity," and while they all prophesied that a serious relapse or death would be the result, they were at one in the opinion that one hour a day might possibly be beneficial. "More," they asserted, "and you will surely die."

In less than two months of experimentation upon himself he became convinced that, even with an hour a day, he would surely die; but he quickly found that his maximum of labor was far more than an hour daily if properly divided. After a year his schedule resolved itself into ten minutes' work (light wood work or weeding in the garden), then fifteen minutes'

rest lying flat upon a couch or a hammock, this followed by ten minutes' modeling or drawing, followed by another fifteen minutes' rest, and then the schedule repeated. With this division he was able to work throughout the entire day without fatigue, eating and sleeping better, and gaining constantly in strength and weight. As strength increased subjects demanding more and more energy were undertaken, but the periods of rest were maintained.

The difficulties of maintaining such a schedule are obvious, especially without supervision; but that it is not entirely valueless would seem to be proved by the fact that, during his fourth summer, the author has been able to do structural carpentry and heavy gardening (such as work with a spading fork) for two or three hours at a time without deleterious results.

Frequent and short periods of rest are infinitely preferable to fewer and longer ones.

Indeed, the rapidity of the author's convalescence, in less than three years, became almost discouraging, because he realized that he was not going to be sick enough long enough to try all of the experiments which he wanted to make; and it became necessary to deliberately

prolong his disability for the sake of these experiments. To this end, one season was spent in immobilizing certain parts of his body with rough splints and adhesive or bandages; and here again he found that this also was entirely inadequate for the purpose of his experiment; that is, *deliberate immobilization did not in the least produce the same effect or the same disability that he experienced in the early days of his sickness.*

The question is often asked as to how early in convalescence invalid occupation may be begun. This depends entirely upon the character and personality of the patient and upon his disability. But, in general, as soon as a man is able to make a spot with a lead pencil upon a sheet of paper his re-education may be begun. Those who have been most successful in the re-education of the sick and crippled agree that the sooner re-education is begun after the accident the better.

Quite the most successful attempt of the author began not immediately after, but immediately *before* an operation (amputation of the leg). This patient was quite hysterical with fear of his approaching operation, and became

much interested in the ideas presented to him concerning the rare and beautiful opportunities which awaited him after it. He took his anesthetic quietly, and, while still nauseated by his ether, requested his nurse to "send for that Barton man because there are some questions I want to ask him."

It must be admitted that this is psychotherapy quite as much as invalid occupation; but it seems quite as much a part of re-education as is the endeavor of every teacher to first interest her pupils in the subject which she undertakes to teach.

Consequently, the condition to be sought at the time of discharge from the hospital is not that of fitness to go immediately upon the land; indeed, this seems to be inadvisable even were it possible. The aim of the hospital should be to so discharge the patient that he will be able to take up *not* the farm work proper, but this intermediate step already referred to as the corollary of the proposition; and this can be accomplished well within the existing limitations of almost any modern hospital.

It is desirable to begin the re-education of the patient at the earliest possible moment,

long before it would be advisable or possible for him to perform even very mild occupations. It seems that the logical beginning, therefore, would be such instruction as would interest and benefit him while still in bed, leading to a continued course of increasing activity and interest, which, however varied it may be at the beginning, would constantly tend toward the completion of the "hospital course."

This, summed up in brief, would consist of the knowledge of the use of such tools and materials as would be necessary for the demonstration of the corollary; that is, the repair and construction of those small buildings which we have already mentioned as a proper and profitable occupation for the development both of his land and of his body.

Often what is necessary for the therapeutic benefit—for the strengthening—of the sick man is at variance with or is far advanced beyond the apparently natural beginning of instruction. Thus, for gardening, the early steps—preparation of the ground, irrigation, ditching, etc.—are far beyond the possibilities of the beginner. The sick man, to his therapeutic advantage, must begin by picking sweet peas or even green

peas. But, alas, there is much to be done before blossom or pod. Because of this there is necessarily a period of transition which occurs between the discharge of the convalescent from the hospital and his condition to make an attempt at actual self-support on the land.

Much discussion and conversation with business men who are very much interested in the subjects of Occupational Therapy and Re-education has disclosed a surprising amount of ignorance upon what is really involved in those subjects. This is nowhere more clearly shown than in the very common question: "But what is the use of teaching the sick or crippled man basketry or weaving? Why not teach him to be a blacksmith or a carpenter?" This question is a perfectly pertinent one, and can by no means be overlooked or avoided.

The propounder of such a question may perhaps be better able to grasp some of the future statements made in this book if he will consider a parallel:

What is the use of giving a child cubical blocks with the letters C, A, and T, and the word "cat," and cat pictures of Tom and Tabbie upon the sides? Is it not that by the gradual

association of the three letters and the picture of pussy that finally the idea that all the elements go together is grasped by the infant mind?

The cases are similar.

The sick and crippled man is very like a child. At first he knows the meaning and significance of almost nothing so far as he himself in his present disabled condition is concerned. To a certain extent he has been killed, and must, if he is to live again, be reborn not only in the body but also of the spirit and the will.

If we consider the learning of basketry or of weaving as the end and object of the re-education of a farmer or a railroad president, we are quite as much at fault as we would be by failing to provide the child with every possible inducement to learn his letters and the significance of their proper correlation.

The extent to which this misconception exists among well disposed people as the solution of the crippled soldier problem is well shown by the statement issued by the Federal Board for Vocational Education in its bulletin, "The Vocational Summary," of July, 1918:

CLEARING UP A POINT

“There appears to exist in the minds of many people a total misconception of what vocational re-education is, as applied to disabled soldiers and sailors. The Federal Board for Vocational Education, which is charged with the duty of re-educating the injured men, is constantly receiving communications from people who have this, or that, or the other supposed ‘art’ or ‘craft’ which is offered as being ‘just the thing to teach the poor dear wounded soldiers.’ These suggestions run all the way from making ‘arcraft’ out of sealing wax, making paper flowers, and gilding pine cones, to constructing alleged ornaments out of putty.

“The Federal Board does not propose to teach any such rubbish. The education to be given will, in the main, be in highly specialized occupations, which are good paying, recognized, and manly callings which have a definite, useful place in the business world, and a steady demand for such work or the products thereof.

“The difficulty appears to be that many of these well-intentioned advocates of gilded peanut hulls and gim-crack nick-nack making are mentally confused, and do not know either what

'occupational therapeutics' and vocational education are, or the part they play. The former is given to divert the patient's mind, to exercise some particular set of muscles or a limb, or perhaps merely to relieve the tedium of convalescence. Occasionally these activities have little if any practical value beyond the immediate purpose they serve, nor are they intended to have any other value.

"But even in occupational therapy the idea now is to give that sort which will be preliminary to, and dovetail in with, the real vocational education which is to begin as soon as the patient is able to go further along. If, for instance, the patient was formerly a sheet-metal worker, and is now debarred from the use of physical strength, he is started, perhaps, as a designer or architectural expert in cornice, sheet metal, and architectural work. His practical knowledge is thus built upon and focused in a specialty suited to his capabilities.

"Instead of making futile little baskets or weaving mats that would have no sale except as a camouflage for downright charity, he is furnished with a set of instruments, a bed drawing board, some text-books, and given able

instruction. The weeks in bed or in wheel chair are utilized practically. When he is able to go into the shops, he is well along as a technician, and ready for further intensive training.

"So it is with all other lines. The business of re-education is, first of all, common sense and practical. The idea is to turn out thoroughly trained men for men's jobs at men's pay, despite any physical handicap which may have rendered the men useless in their former callings."

It is necessary to realize first that the great fundamental upon which re-education rests is *not the making of an object, but the making of a man.*

To this end, any occupation, however trivial or seemingly absurd, which will assist in the rebirth of the desire to do—the Will—and which will at the same time involve such exercises and such efforts as will assist the body to resume its normal functioning, is no more wasted than is the multiplication table, for there is no value in a knowledge of the multiplication table as such. The value lies in the mental training necessitated by its memorization plus the ability to later handle figures to some practical end.

Occupational Therapy is the science of instructing and encouraging the sick in such labors as will involve those energies and activities producing a beneficial therapeutic effect.

Bedside occupations are those which are used just as malted milk, the white of egg, or beef-tea is used in medicine, and as building blocks are used in infant training; that is, because the patient is not strong enough to assimilate or to understand anything of greater strength or importance. They are general tonics, stimulants, and foods; and they should be discontinued as soon as possible for something stronger—in the language of work—for *Invalid Occupations*. These are more powerful foods, tonics, and stimulants, which are used to prepare the patient for some specific treatment later which shall lead directly to definite re-education.

Re-education is such training as will fit the patient (not to be a skilled worker in a definite trade, for that is impossible without speed as under commercial conditions, which is impossible even in the largest of the hospital shops where the physical condition of the worker must be considered as of prime importance) to begin

to work at the trade with a fair chance of success when discharged from the hospital.

For instance, mechanical drawing as outlined later would be used as a bedside occupation, developed later to an invalid occupation involving the use of the T square and the triangle, which would be used as a medium in which to carry geometry and projection, to make possible and probable a profitable existence as a sheet-metal worker, a trade selected (at first) as his probable future.

Other terms—"functional" and "vocational" rehabilitation, etc.—will be left for definition by those who more frequently use them.

The amount of money which can be derived from any of the sick man's activities (so far as his life in the hospital is concerned) should play no part in their selection and but very seldom in the bedside occupations.

There is a noticeable gap here which it appears can only be filled by a special classification which, for lack of a better term, we will call "Convalescent Remuneration." This should include occupations from and of which money is the only consideration, and from which no therapeutic effect, good or bad, is anticipated

or sought. Of such there are already many segregated; and doubtless the increased interest and study will show many more, although without doubt quite as many convalescents will relapse and die before the actual effect and dosage of such occupations are defined as have been caused by the necessary experiments in medicine. At all events, at present such should be approached only with the greatest caution and only by those who are specializing upon the subject.

By re-education is meant such training of mind and body during convalescence as will result in the fitting of a patient, who can no longer perform the activities demanded by his old trade, for one in which *the greatest amount of his old knowledge and ability may be made use of* in some new line; that is, **A BETTER JOB**—or by such training of mind and body during convalescence as will result in returned ability lost through functional disturbance, thus fitting the patient to return to his old trade richer by an additional insight into the possibilities of that trade, and stronger through his ability to do more—or **A JOB DONE BETTER**.

TEACHING THE SICK

TEACHING THE SICK

IT is often difficult to induce the sick man to try to do anything. This problem is much simplified if it can be made clear to him that the work proposed has some definite bearing upon the trade which he already knows, and that, by learning the subject proposed, he will be able to return to his old shop better fitted for his old work, and perhaps able to get more pay on account of his increased knowledge of the old subject, or of one so closely allied to it as to make him of greater value to his employer.

The object of greatest desirability is to return the sick man to his old trade in which by far the greatest number succeed better than in a new one. But he should be returned to his old job knowing more about it than before his accident.

Consequently, it is necessary to find at the outset a subject so essential that—if not an absolute requirement—a knowledge of it will be of great value irrespective of the occupation later selected.

It should be borne in mind by the reader that no particular form of disability is being considered, that our patient is being regarded only as a "sick man" in general. The author realizes that such a premise is far from satisfactory; but until certain fundamentals are established it is impossible to differentiate. The problem of teaching the crippled is quite unlike that of teaching the fever patient; the problem of teaching the insane is different from that of teaching the feeble-minded; the inmate of the prison must be treated differently from the inmate of the workhouse. And in a short book it is impossible to deal with any other than such as may be included in the very general definition of the "sick man."

For the exposition of the Consolation House method of teaching the sick we will assume the patient, without respect to his particular disability, one for whom at the moment no more movement is prescribed than such as would be involved in the so-called passive motions often given to heart cases. The patient is in bed, but is mentally alert; he is presumed to have no more than a grammar school education, and with no knowledge whatsoever of any of the

subjects which have been decided upon as fitted for his case. His doctor's prognosis is good. If he can be sufficiently interested and amused through the present period, there is every reason to suppose that as soon as he can leave bed his convalescence will be satisfactory and rapid.

If such proves to be the case, he gives evidence of being a suitable person to return to the land, one for whom out-of-door work will be beneficial. The physician's commands regarding the extreme limitations of activity reduce the number of subjects which can be taken up at once to a minimum; and of these, that one must be selected which will have the greatest value in the future.¹

In the language of medicine, what is desired for this patient can be compared to the very mildest tonic and stimulant possible, one which will form the very beginning of a treatment which later will be entirely changed in character, and which may be very involved and complex.

¹ Any of the few occupations which could be considered remunerative to any extent whatsoever—such as the weaving of dolls' hammocks, doilies, or colonial mats—would return such a very small amount in money as to cause them to be discarded at once in favor of the greater return which a knowledge of a chosen subject will give in the future.

Occupationally speaking, we select, as does the doctor, that one which, while answering the above requirements, will also most quickly and most permanently strengthen the entire system.

Perhaps the only subject a knowledge of which is valuable in every walk of life—to the laborer and the college president; to the clergyman and the pastry cook; to the milliner and the farmer; to the bank president and the inventor—is mechanical drawing.

Mechanical drawing is the universal language of labor. In the world of labor it is far more important to be able to make or to read drawings than it is to make or to read writings.

It has been proved possible to teach individuals entirely ignorant of the subject sufficient to enable them to understand and to make correctly intelligible drawings, and this in a space of less than three months. Too much emphasis cannot be placed upon the distinction between drawing and draughtsmanship. It would be impossible in three months—and in most cases in three years—to re-educate a man ignorant of the subject to become a good draughtsman; indeed, in most instances, such

would be unwise and uneconomical even were it possible. But, aside from the possible improvement in position, sufficient knowledge of drawing to enable the farmer to plot out his fences before actually beginning to dig the holes—to study a crude outline of his projected swamp drainage before his discovery that he could have accomplished the same result with half as much digging—is quite as necessary and valuable as is a knowledge of the same art to the person who wants to draw pen-and-ink pictures for *Vogue*, or to the clergyman who wishes to rearrange his chancel, or the bank president his office.

Practically everything which is made by man either involves a knowledge of drawing, or will be benefited by such knowledge; and, as a knowledge of this subject has proved to be easily taught, easily graded, and of actual therapeutic advantage to almost every disease and disability, this subject is selected as quite the most valuable, appropriate, and healthful of all the bedside occupations.

But, even admitting this, the teacher is often confronted with the problem of how to show the sick man that she has anything at all to teach

him; and this frequently necessitates a carefully contrived plan of procedure, the sole object of which is to catch the interest of the sick man.

In general, the best way of accomplishing this is by amusing him. The sick man in bed can be made to laugh very easily if properly approached; and a laugh is a most satisfactory beginning for most bedside occupations, no matter how serious the subject of final re-education may be.

For instance, for workers in nearly all trades, a better knowledge of plane geometry is advisable. This is especially true of sheet-metal workers, etc., who by a lack of knowledge of geometry and of projection are frequently prevented from being thoroughly proficient in their trade.

The re-educational teacher, however, who approached an invalidated sheet-metal worker with the post-Euclidian definition of a straight line would be as much at fault as if she assured him that outside the realm of metaphysics no such thing as a straight line exists. A far more promising beginning for the study of drawing leading to geometry would be the story of

THE KAISER'S TICKET TO HEAVEN

The other day after a big battle the spirit of the Kaiser met that of King Albert of Belgium high up above the earth, for they had both been killed.

"Hello, Bill," said King Albert. "Where you goin'?"

"Goin' to heaven," said the Kaiser.

"Humph!" said the King, "got your ticket?"

"A Hohenzollern needs no ticket for admission anywhere," said the Emperor.

"I'm not so sure of that," said the King. "I've got mine all right, all right, and I'm hanging onto it!"

"Say, do you really think we need tickets?" said William.

"Sure do!" was the reply.

Well, William was quite impressed that any *King* thought *he* ought to have a ticket; and he begged Albert to let him have his. This Albert refused to do, but finally consented to let the Emperor have "just a little piece" of it. Now the ticket was all folded up (Fig. 1),¹ and the

¹ Fold B to E and A to F, making Fig. 2. Fold C-E to F-D on line G-H.

King cut off a piece (cut on line I-J) which he gave to the Emperor; but, as they approached the pearly gates and the Emperor could hear the choirs of angels singing, he realized how

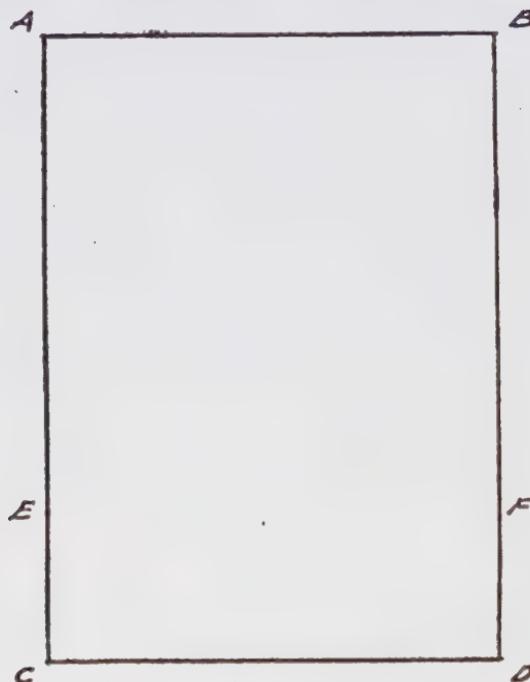


Fig. 1.

far away he was from Berlin, and begged Albert to give him the rest of the ticket. While not being willing to do this, Albert cut in halves what he had retained (cut on line K-L)

and, giving the smaller to the Kaiser, went on to the gates of heaven. William, with two-thirds of the ticket in his possession, stood one side, in expectation of seeing Albert refused admission. To his surprise, however, Saint Peter, after unfolding the piece of the ticket

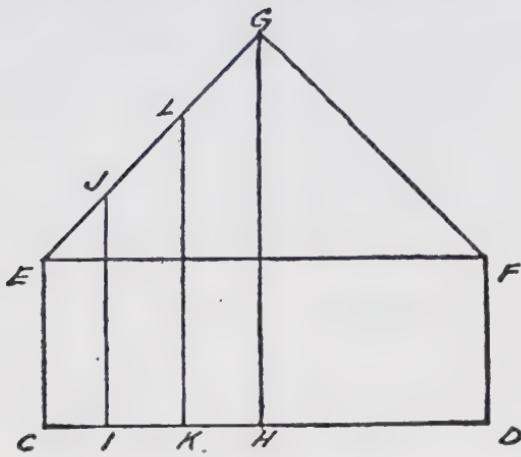


Fig. 2.

which Albert had retained, rang the bell and cried out, "Front, take this gentleman to the corner suite on the second floor!" The Kaiser, satisfied that the royal suite had been reserved for him, now approached and proffered his two-thirds of the ticket which Albert had given him; and, when Saint Peter had unfolded the

pieces,¹ he called out again, "Front, show this gentleman to the elevator!"²

Unless this is an old story to our sick man he will probably ask to be shown how the paper is folded so that he can make one and send it to his brother. In event of this, the teacher should leave the sample and the patient for that day to follow it up in her next visit, or immediately if the ticket story did not "take," with the following, for example:

Do you realize how many things can be done with paper that can't be done with anything else?

How many times is 8 times 8?

64? Sure?

Write it down and sign your initials under it so that I can have it to prove that that is really what you said.

Now I'll draw a square on this piece of paper, 8 inches by 8 inches. Measure it yourself, and see that it is 8 by 8. And you say that 8 times

¹ The most effective way of showing this result is to use two of the pieces to make the letter T, first forming the word T-H-E. There is no joke in this, but, by separating the T, and placing the two pieces at the end (spelling the word H-E-L-L), the climax is brought at the proper place.

² The author regrets his inability to give proper credit to the author of this story and to the inventor of the paper folding.

8 is 64. Now let us mark out on this square of paper the following lines (Fig. 3); all of the divisions of the square are 3 inches and 5 inches. Now let us take the scissors and cut our paper square on these lines.

Now let us put the pieces together again, but instead of putting them together as they were

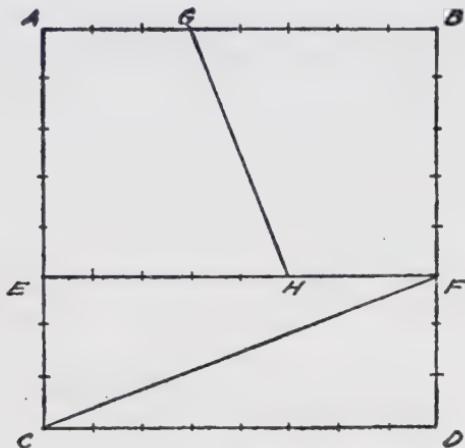


Fig. 3.

before, let us change the arrangement to this (Fig. 4). You see the 3-inch sides of one match the 3-inch sides of the other in each case. We have used exactly the same pieces of paper that we cut out of our 8-inch square.

And 8 times 8 made 64, you said.

But now we have a figure, a rectangle, which is 13 inches long and 5 inches high.

How much is 13 times 5?

Even if the teacher has the ability to explain this fascinating joke to the sick man, it is better not to attempt it, but to "softly and silently vanish away," leaving the pieces for the sick man to puzzle over.¹

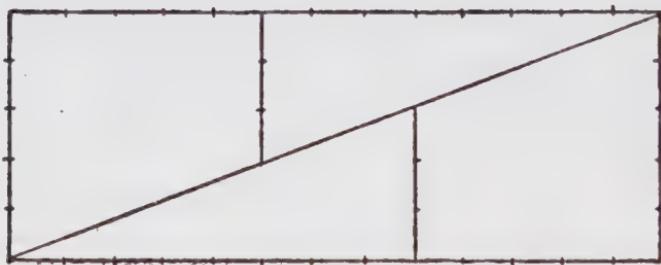


Fig. 4.

Up to the present the teacher has been merely striving to so stimulate the interest of the patient that it would be possible to induce him to endeavor to experiment himself with the folding of paper, and that in such a way that his mind and efforts can be turned toward geometric problems. There are many fascinating things to do with paper; but, having intro-

¹ Scientific explanation of this paradox may be found in "A Scrap Book of Elementary Mathematics," White.

duced to the mind of our sick man a mathematical puzzle rather than a trivial one, the teacher should as soon as possible take up such problems in paper folding as will illustrate and prove the theorems of geometry.¹

As a guide (to the teacher) in the larger subject there is a most excellent and too little known book on "Geometric Exercises in Paper Folding"² by T. Sundara Row.

It must be remembered that the theories of equal or similar triangles, for instance, which are grasped instantly by the mind of the young student, are often entirely incomprehensible to the older mind which has never been trained along these lines.

To further simplify the subject, at Consolation House we demonstrate as follows:

Take a sheet of paper 6 inches square. Mark off on each edge every 2 inches. Fold the paper between these marks to divide the sheet into nine 2-inch squares (Fig. 5). Fold on the line B-D. Cut on lines D-F; F-H; H-B. Smooth

¹ The most valuable book upon the subject of paper folding, as applied to a development into advanced and serious subjects, is "Educational Handwork," by T. B. Kidner, The Educational Book Co., Ltd., Toronto.

² The Open Court Publishing Company, Chicago, 1905.

out the paper (unfold on line B-D). We have now a right-angled triangle B-2-D, with a square DFHB erected upon its hypotenuse. Cut on the lines D-K; F-I; H-J; B-L; B-D. Rearrange these four triangles and the square, as shown in Fig. 6. That the square of the

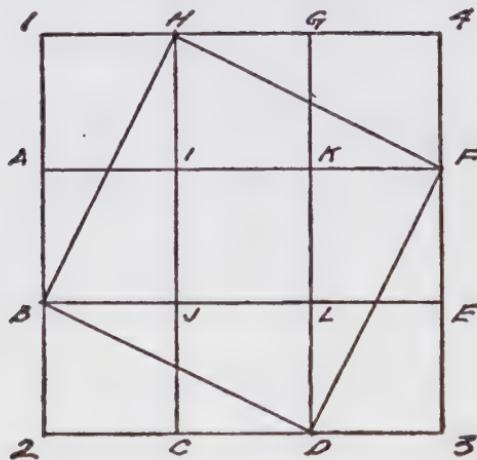


Fig. 5.

hypotenuse does equal the sum of the squares of the other two sides is obvious to the most ignorant or pigheaded.

Now promise the sick man a box of cigars if he can fold a triangle other than a right-angled one of which the same will be true. If he can, the box of cigars will be well spent; if he cannot,

he will have had a very considerable amount of interest, of exercise, and of education.

Paper folding, which represents the activity requiring less movement than anything else, may be used as a beginning of many alternative treatments. At first sight it would seem so simple that, while it might be satisfactory as

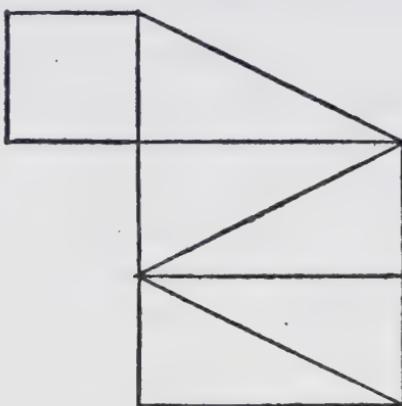


Fig. 6.

an amusement for a child, that for a very high type of mind, such as—let us say—the greatest of living inventors, it would be impossible.

This is not true.

After much difficulty, Consolation House succeeded in getting a very carefully made wooden pattern, upon which, if followed exactly, a paper aëroplane glider can be formed in

a few moments and with practically no exertion. This glider, if properly made, will loop the loop, perform a spiral dive, cross the street and return, as its wings are moved and the belt pin which makes up its balance is adjusted. Improperly made, it is as "dead as Dick's hatchet." This glider would irritate the child to the point of hysterics; but, while it would be most regrettable should the greatest of all living inventors need such treatment, it is safe to assume that he would be intensely interested not only in making this glider perfect, but in so changing it as to make it capable of other evolutions.

However, paper folding may be used in an alternative course only in the very early stages; and we must quickly turn from it in the case of our sick man to something else, which, while involving more exertion, will not only continue the study of geometry, but will also result in a product of value.

CHIP CARVING

For this, chip carving may be profitably considered. Chip carving differs fundamentally from wood carving in that it does not involve what is technically known as "grounding";

that is, removing the wood from beside or beneath a raised pattern. Chip carving is done by the direct incision of the wood with the tool, this resultant incision retaining of necessity the shape of the cutting edge of the tool. It is reduced, therefore, to the straight line of the chisel and to the arc of the gouge, and, consequently, is essentially geometric. It is interesting and fascinating to even those of a very high degree of intelligence, though in its simplest forms it will make no prohibitive demands upon the lowest order of minds. It can be done in a wheel-chair, or even in bed, and with a soft wood will require but one hand. The work can be easily graded as to strength, intelligence, co-ordination, and eye sight, and can be made to result in a great many articles of commercial value, especially in its more advanced grade.

As our patient gains in strength and develops with his chip carving, his paper work should be made to include the drawing out of forms and the projection necessary for the development of solids.¹ He must be taught how to measure, draw, and cut out paper of the proper size and shape so that it can be folded or rolled

¹ See "Educational Handwork," Kidner.

up into pill boxes, or odd shaped cartons, etc.

With the increased strength resulting from his daily practice with wood-carving tools will come a time when it is advisable or necessary to turn his thoughts back to his old job; and now his experience with his paper folding can be turned to account, to his intense amazement and interest, in the thinking, drawing, and cutting out of a paper model for—we will say—an old-fashioned punched lantern, the door panels of a meat safe or a cupboard, all of which will be merely adaptations of the same forms with which he has been dealing since he was first told the story of the Kaiser's Ticket to Heaven. A sheet of brass or of tin-plate now takes the place of the wood-carver's board; the chisel and the gouge are replaced by the punch; the mallet takes a slightly different shape; and the only great change is that again our sick man hears the *cri* of the tin, and the fact that, while the man could hardly pass a high-school examination in geometry, he will waste far less time and material in getting out a shop order than he did before.

To teach mechanical drawing to a sick man

in a recumbent position, incapable even of the motions necessary to handle the T square and the triangle, entirely ignorant of the subject and not in the least interested in the subject, is an entirely different problem from the teaching of mechanical drawing to the normal man, woman, or child under any of the several conditions within the writer's experience.

Regarded from the proper point of view, however, the subject becomes immediately simpler instead of more difficult, because in mechanical drawing—as with almost any other occupation, especially in the beginning of training—the tools or instruments involved are very apt to antagonize or to terrify the patient.

Just as a surgeon would seldom, if ever, tell a patient exactly what an imminent operation was to be, much less, just how it was to be performed, and, still less, what instruments he was going to use—so the teacher of the sick should beware of telling the patient that he was going to be taught mechanical drawing or anything else; and she should further avoid placing before that patient strange tools and instruments, the use of which the patient is ignorant, and which except in very rare in-

stances only results in discouraging or frightening the patient.¹

For our first instruction then in mechanical drawing we will approach the patient with a block of cross-section paper, a lead pencil, a 1-foot rule, and a cigar box.²

So armed, the teacher approaches the patient, who has no idea of what is in store. The following has been chosen as being the simplest way apparent of indicating the teaching method, and presupposes answers to some and not all of the questions asked by the teacher.³

In many instances the mere sight of the cigar box in the teacher's hand (the only

¹ Such a rare instance might, for example, be the exhibition of a new and highly developed instrument to a person proficient in the use of a less perfected one. To an engineer or a mathematician an instrument for measuring fourth-dimensional spaces (should such exist) might prove a tremendous attraction; but, even then, in the case in point it would probably kill the patient.

² A cross-section paper of any size may be used, that marked into inches and twelfths being preferable (on account of a later effect). The size of this paper should be smaller than that of the cigar box. The cigar box should be the size ordinarily used for fifty cigars, and should, so far as is possible, approximate in its total dimensions even inches or half-inches. The cover should be so tacked down that it cannot be easily opened.

³ In many cases utter lack of interest and lassitude will mark the only change of attitude on the part of the patient. This shows failure on the part of the teacher and a mistake in her psycho-analysis. Unless having sufficient experience to be able safely to quickly plan her attack, she had best withdraw at once to give the matter further consideration.

article visible to the patient) will suggest either that the teacher has had a present or that he (the patient) is going to get a smoke. The slightest indication that the patient has noticed the cigar box—a look rather than a word—is all that is necessary to occasion the following:

Could you make a thing like that? I mean if you were well—of course you can't now. . . . Yes, I know it's nothing but a box, but suppose you had to make one exactly like it, just the same size and thickness and all that, how would you go about it? . . . Measure it. Sure! Well here's a kid's ruler—let's measure it. How big is it? Which side first? Well, it's the same height all the way round, so first let's measure the bottom.¹ . . . Well, it's 5 inches by 10 inches. Wait 'til I put that down—I'd be sure to forget it.² Now wait a minute. Why not just mark the bottom of the box right out on the paper and use that for a pattern? . . . There, confound it! the paper isn't big enough. If only

¹ All references to technical terms, such as plan, elevation, and section, dividers, scales, and angles, etc., at the beginning should be carefully avoided.

² Now for the first time appears the cross-section paper.

I'd got a bigger sheet, if only there were twice as many of those little blue squares as there are, it would be a lot easier and I'd remember a lot better just what I had to do when I start to make this thing in my little shop. But see here! How's this for an idea? Even if we can't mark it out full size, why not pretend—make believe, as the children say—that every one of these little squares on the paper is an inch instead of being only a twelfth of an inch? See, there are twelve of these little light squares in every one of these big squares. If every one of these little squares counts an inch, these heavy blue lines would each equal a foot. . . . But the box is $2\frac{1}{2}$ inches high and it's going to be a nuisance dividing those little squares in half. So let's call it that every small square equals $\frac{1}{2}$ inch, that it takes two squares to make an inch, and that our heavy blue lines are 6 inches apart. . . . You draw that line. . . . What! Can't draw a straight line? That's what I said once to an artist and he told me that nobody but a duffer ever tried to. He said that artists and architects and draughtsmen never tried to draw a long line whether straight or curved, but that

they invariably drew a whole lot of little short lines; and he told me that I wasn't a duffer through not being able to draw a straight line, but that I was a duffer for thinking any one could. Anyhow, we won't have to draw the lines. See, just pick out the point where any one line crosses any other line; in other words, just put your pencil down anywhere on that sheet of paper and make a spot.¹ . . . Now you see we won't have to even draw the line. All you've got to do is to count down from your spot ten little squares—that is, two for each inch that we found the end of the box measured—and make another little spot there.² Now we haven't got to measure at all, but just turn a sharp corner from that spot and measure out twenty little squares, which is the long side of the box. Then turn a sharp corner and measure back 5 inches more—that's ten

¹ The patient, after having thoroughly softened the pencil in his mouth, will probably make a black pyramid of graphite on the paper about the size of the head of a tack. This will be entirely satisfactory, and under no circumstances should he at present be told to keep the pencil out of his mouth or to make a smaller mark, or be inflicted with a lecture on cleanliness.

² In the vast majority of cases a tremendous improvement will be noted in the making of this second spot, frequently even the most vulgar and ignorant minds grasping for and by themselves at once that their first spot is clumsier than was necessary.

little squares—from the other end of the box; and there's the outline of the bottom for me to take to my bench.

But these last two spots you made you can't see half as clearly as you could that first black one, but instead of making one big black spot at each corner let's put a lot of little black spots in between—let's make a spot where the printed lines cross each other right along from one corner to the other. . . . There now, the outline shows up fine, don't it? . . . Now see, of course I know you can't draw a straight line—you just said so—and that artist said nobody could; but you can make a little long spot; it will run from one to the other of these little spots, and of course you haven't drawn a line, but then we'll have a regular complete outline of the whole thing.

What do I mean by saying no one can draw a straight line? Why, there really is no such thing as a line. A pencil mark is a lot of lead scraped off on the surface of the paper—but, my gracious! that's as big as all out doors compared to a real line. . . . Here's a hair. If I hold that in my fingers and stretch it out, you'd think you could call that a line, wouldn't you? And

yet that hair, so they say, is hollow. And, if it is, the hollow part would hardly be big enough to get a fleck of dust through. But even if that hair and its hole and speck of dust were all a hundred times smaller, in which case you couldn't possibly see them, and if the hair was pulled out so straight that the fleck of dust could blow straight through the middle of the tube without touching any of the sides; the path of that fleck of dust would still be too big to call a line. So that's why it's impossible for anybody to draw a line, and why this great big jumbo spot of yours is a perfectly good beginning. And it's sort of fun to think that, just because I dropped in for a little talk with you this morning, that—sick as you are—you have begun to make mechanical drawings, because what you've made this morning is a plan, and the plan is one of the three fundamentals of all mechanical drawing. Almost everything that is made by man begins with mechanical drawing—a bed, a house, a locomotive all begin with a plan. And there are only three of these divisions—only three things to understand in order to understand mechanical drawings—the plan and the other two. And already, just in a

few minutes, you have actually succeeded in making and getting a grip on one of the three necessary things for the understanding of this great subject.

I'll leave the box and the paper here, and, if I've time, I'll come in tomorrow and tell you about some of the other things.

Say, did you ever go into a high building? Ever go up ten stories? Didn't you get tired before you'd walked up all the stairs? . . . Oh, you didn't! You went up in an elevator! Why did they call it an elevator? . . . Oh, because it goes up. Well say, that's funny, ain't it? Because the next part of mechanical drawing is called the elevation because it's a drawing of what goes up.

In the vast majority of cases it is unwise to endeavor to give in one lesson an idea of more than one of the subdivisions of drawing. The explanation of elevation should be conducted after the same manner.

It can frequently be made more interesting after the elevation of the cigar box proper has been drawn to suggest that the elevation of a building can be illustrated by drawing another cigar box placed on top of the first.

Section, however, being very much more difficult to explain, can best be demonstrated by the teacher's appearing with a carpenter's hand-saw, with which—after explaining that the section is a drawing of what lies within the outer confines of the object, to show which certain portions of those outer confines must be removed—the teacher then saws through the cigar box, whereupon it becomes comparatively easy for the pupil to realize that what has been sawn through is in section, that what has not been sawn through is interior elevation.

Practice in drawing medicine bottles, pill boxes, or salt-cellars is quite as satisfactory and efficacious as is any attempt to make the patient develop too rapidly into the drawing of more complex forms.

One of the points of greatest difficulty for the teacher of the sick is due to the fact that for satisfactory development, and for the maintenance of interest, the patient must never be allowed to become fatigued by or bored with the instruction. To this end it is often necessary to change the occupation, and without preparation. It is well, therefore, to leave the product of the lessons uncompleted in event of fatigue

or ennui which may arise in a later lesson, upon which the teacher may become weary or bored herself (*sic*) and suggest that the former unfinished article be completed before progressing further with the work in hand, and this without making the pupil feel that his work period has been interfered with.

I can hardly emphasize too strongly the necessity of making the patient feel that never for a moment is he obliged to discontinue his work, for, an interest in it once aroused, the work of the sick man is very real and very important. This is as it should be if we are to restore the patient's self-confidence and give him the realization that though sick he is still able to do a lot. Every time that the teacher lets the patient realize that he is "too tired" or "not well enough" to do this or that, the props which she is trying to build under him—the props of self-confidence, of will, of good intentions—are weakened. It is a matter of very slight importance whether or no the patient finishes his drawing, his raffia bag, or his paper folding on this particular afternoon; it is a matter of the most essential importance that the patient should realize at the end of every

day that he has been well enough, strong enough, manly enough to have something to show for the day which is past.

Unfortunately, there is yet another complication which appears in this connection, for the patient may be teased, petted, or persuaded along for a certain length of time when there arises, especially in the case of serious minded patients, a keen discontent with the work, the teacher, and everything in connection therewith on account of the fact that all of these short, choppy lessons have resulted in nothing that was "any good."

To the well man the realization that he is making one very small part of a very important thing to be completed in the dim future is sufficient to make him work with interest if not enthusiasm; but the sick man, especially if it is desirable not to irritate him—if, in other words, the occupation is being used as an antipyretic—desires, nay insists, that things develop rapidly. He wants to see results quickly, and is not content to look to the dim future for the completion of his effort.

Therefore, it is advisable, though extremely difficult, to so arrange the progression of sub-

jects taught that each successive step with its resulting product be such as can be used in the next or in a future article, or, what is still more effective, surprising and delightful to the patient, can be made to combine with something which he has made before, hitherto considered useless, and now finds completed.

Thus, a patient whose legs are being strengthened with a jig-saw when showing signs of fatigue at the completion of a bird on a garden stick, should not be advised to stop work, but should be approached with the suggestion that this bird had better be finished up at once in order to see if the bill or the tail should not be longer or shorter in the next one. This involves the highly important (*sic*) question as to whether the bird is to be red with white wings, or white with red wings. It means a withdrawal from the jig-saw and the woodworking shop to the paint shop, and thus accomplishes a change of atmosphere, posture, activity, interest, and *a change of occupation which is equivalent to a rest*.

Or, should the patient be so fatigued that no further activity is advisable, an intermediary step is obviously (*sic*) necessary before the colors of the bird can be determined, which makes

the work of the moment take the form of looking for birds with attractive coloring through an opera glass from a hammock, or going over a scrap-book in the library.

Thus the skilful teacher can successfully fill up the whole of a work period for a patient anxious but unfitted for work, without allowing the patient to realize that he has been "camouflaged." While, to be sure, such a course to a certain extent is based upon deception, which can hardly be approved, if we remember our first axiom—that beneficial therapeutic effect should always be the first consideration—and, if by such treatment we can leave the patient in such a peaceful condition of mind as to obviate the necessity of the soporific which he would have felt necessary had he become irritated, it seems permissible.

But quite as important as the method employed at the beginning is that used at the end of a period of work. The teacher should so arrange the period that its last moments should never be devoted to intricate work, or to the rectification of trivial mistakes. Tired, beginning to need food, and with waning in-

terest, the most trivial occurrence affects the patient-pupil much more and with more disastrous results than when fresh and interested.

The last moments of a period of work are by far the most important both educationally and therapeutically. During them must be implanted the seed of desire to do more; and when at the end a patient-pupil becomes nervous over some little mistake, he is apt to leave the workroom discouraged, disgusted with himself, and in a frame of mind entirely the opposite from that sought.

At least half and preferably three-quarters of an hour should be allowed between the absolute cessation of all work and meal time, for, whether the patient is tired or not, ample time should be allowed for leisurely washing and dressing before taking food.

A little work is better than a lot of morphin.

With the completion of the two- or three-story cigar box elevations, the patient's interest can be stimulated by the suggestion that we now have a building with a flat roof, but that it will look more like a house if a plain gable roof is added. But by this time there is danger that the patient may begin to tire

of his drawing, in which case what he has done should be transferred to card-board, cut out with scissors, and a card-board model of his house erected by sticking the sides together with bits of adhesive or gummed paper.

And now—and not until now—is it time to point out the fact that planes receding from the eye require more than one elevation for their complete description, etc.

The teacher of the sick cannot be overcautious concerning the probable irritability and disgust of the patient at being unable to see the relation which different elevations must bear to each other.

Here the patient should be allowed—even encouraged—to play with his house to any extent by indicating doors, windows, chimneys, cats on the chimneys, and girls on the piazzas.

A bedside occupation, by being emphasized and developed, may be turned into an alternative.

Thus, modelling, which is a far-reaching mild tonic and stimulant, may be used as such, or when advisable may be selected as a life work. The painting of little ornaments upon garden

sticks, etc., ordinarily used to stimulate interest and to provoke rest, becomes a point of great importance if the patient is to become a toy maker.

The amount and quality of the instruction given, and the time which can be spent upon a secondary subject, therefore depends upon the total result desired, and should be decided by the teacher at the outset.

Frequently, even a short period of shop work is sufficient to develop abilities in the patient which were not reported by him or discovered in the occupational diagnosis. Patients often overlook, forget, or consider past experiences and interests of too small importance to mention. In one case it was only after some weeks of shop work, when the patient had reached work with the chisel, that his manner of handling it suggested to the director that he had had some past experience in wood carving. This the patient had entirely forgotten, but "used to love it as a boy and did a lot." In this case the forgotten subject proved an asset of great value. This not uncommon condition is quite similar to that of the patient who neglects to speak to

his physician of a pain in his abdomen because "it has quite nothing to do with" his headache. When such new ability is discovered, the outlined treatment must be revised and corrected at once.

MODELING

For an understanding of the development of drawing nothing is of greater value than modeling in wax, for modeling is nothing but drawing in three dimensions.

The desire for modeling, and the ability, is almost instinctive. There is, however, a great difference between the educational value of the crude face which a child makes in its mashed potato and the efforts made by a student toward the modeling of some definite object.

Wax is infinitely preferable to clay in work with the sick both on account of its being cleaner and more easily kept in the sick room, and also because clay, to retain its pliability and form without cracking, must be kept moist, a difficulty in most and an impossibility in some sick rooms. Also wax has a distinct therapeutic advantage over clay, especially for paralytics, or for those troubled with rheumatic or

arthritic afflictions of the hand. A patient who is, or who fancies himself to be, unable to move his fingers, for instance, can be made to hold in the afflicted hand a small ball of wax if it is carefully pointed out to him in the beginning that all he has to do is to hold it, and that no motion is necessary, such being accomplished with the other hand, whose function it is to squeeze off little pieces and roll them into "worms" with which his model is built up. However, it is practically impossible for any one, sick or well, to hold a lump of wax without involuntarily squeezing it. In other words, the mere holding of a lump of wax is an incentive to the patient to do exactly what the physician desires him to do—that is, to try to exercise the hand.

Lack of confidence in his ability to make anything definite is the greatest hindrance to a new pupil quite ignorant of the subject. To overcome this lack of confidence, and in order to produce satisfactory results so quickly as to stimulate the patient to further efforts, the use of templates has been found most advantageous.

At Consolation House the first problem is a

cube (one of 2 inches having been found most satisfactory) for which two squares are cut out of tin-plate from a paper model, together with a template also of tin-plate, so cut as to define the sides of the cube. By tacking one of the squares on the modeling board, and bringing the template in contact with the edge thereof, the cube is very easily and perfectly formed, as is proved by the second square when it is laid upon the top of the completed model. Next in order we use the hemisphere, the prism, and the truncated pyramid.

The inherent desire to make grotesques, to scratch faces or ornament, is allowed free scope, but only upon the surfaces of the completed models, thus enabling the teacher in a perfectly natural way to begin the study of the theory of applied ornament.

A change in the materials used is often equivalent to a change in occupation. The technicalities of one trade or art seldom carry over into another. For instance, a surgeon, given a sheet of paper and a pen, will in the majority of cases make an irregular, "broken," scratchy line, the principal characteristics of which will be hesitation and indecision, whereas the same sur-

geon with a scapula will make an incision possessing the opposite characteristics.

A patient, being taught designing and bored with the necessary practice of drawing out "repeating" patterns upon paper, will often take fresh interest if asked to do exactly the same work with a graver upon a block, or with a modeling tool upon a smooth surface of wax, especially if the thought is suggested that such is not only a drawing, but is a beginning necessary for the occupation of chip carving. This, an extra stimulus in most cases, seems to result from the feeling on the part of the patient that he has progressed beyond the work which he is actually doing.

Card-board and wax modeling are used to develop the patient's understanding of drawing until he is able to use a small drawing board, T square, and triangles. These should be presented to him not as curious tools the use of which is very involved and difficult, but in quite a contrary way.

Up to the present the pupil has been working upon cross-section paper, and is entirely at a loss to know how to proceed if given an un-

lined sheet upon which to draw. The Consolation House method is this:

With the first sheet of unlined paper, the patient is asked at what square he will begin his new drawing; and he is laughed at when he declares there are no squares on the paper. He is assured that the entire sheet is covered with tiny squares, and that he is a duffer if he can't see them. However, because there are so many duffers like him, who can't see all the squares, these drawing instruments—the T square and the angles "Fatty" and "Skinny"—have been invented not so much to draw with as to help him to see the squares.

Thus, we say, "Put your pencil down where you want to begin your drawing. Well, that is exactly on the corner of a square. If you put this T square so, against that point which you have made, your pencil shows up one line along its edge; and, if you slide your T square down and put your triangle on the point too, your pencil again shows the corner of the square at which you have begun. Now your ruler on these two lines also shows you the other squares as they intersect these lines; and the whole thing is a lot easier because you don't have to

bother with all the other squares on the paper which you're not going to use."

While it is hoped that the reader has grasped the fact that the patient from the very beginning has been working "to scale," it is most inadvisable to call the patient's attention to the fact. It should in general be accepted as an axiom that *at the beginning technical terms and unusual words and names should always be avoided.*

WOOD WORKING

Wood working, presenting as it does innumerable mental and physical problems and activities, ranging as it does from the simplest tonics and stimulants to the most powerful alteratives, is, without question, one of the most valuable subjects for the re-education of the sick. There is hardly a muscle, joint, or organ in the human system which cannot be directly or indirectly affected by it in one or more of its various forms.

Quite as important to the instructor as the sight of the tool being used is its sound. All good tools, like all good men, sing at their work when properly treated. Each tool has its own distinctive song, and when working under proper

conditions always sings that tune—a tune which varies only with the size of the tool, the skill of the workman, and the material upon which it is working.

And just as a tool sings when happy, so does it express its anger or annoyance at any attempt to make it perform motions or acts for which it is not fitted.

The hatchet, and its cousin, the chisel, both cease their contented crunching when in their feeding they bite upon metal; they both grunt violently and refuse to work until the damage done them has been repaired. A carpenter's hand-saw interrupts his rhythmic chant with a shriek of pain if asked to bite through a nail; but a nail in the teeth of the hack-saw produces only the contented growl of a hungry kitten.

It is highly important that the teacher of occupations to the sick should be able to tell by the sound whether or not a tool is being properly used, not on account of the tool, as is the case with the shop foreman, but because *the sound of the tool is the very best indication of the condition of the patient using it.*

For instance, when the long rhythmic song of the hand-saw suddenly changes into a series

of short, syncopated, "jazz-band" sounds, it is a better indication than the pulse or the temperature that the patient is becoming fatigued or nervous, and that his work should be changed or discontinued for the moment.

Tools are very much like humans: they all have their abilities and limitations. Most tools, however, understand their limitations better than do most humans.

The tools now in common use are, to be sure, the tools of the earliest ages in their essence. The hammer, the saw, the chisel, and the axe are in essence almost identical with those of prehistoric ages. Time and experience have, to be sure, improved materials, tempering, handling, balance, etc.; but the fundamentals of those tools have not changed.

As a result of this thought and care, which may be likened to raising thoroughbreds, our modern tools obey their masters in proportion to the degree of knowledge which their masters possess concerning them. Consequently, any one finding difficulty in making a tool do what he wants it to do, before blaming it, should consider just what it is that he is asking the tool to do. In the case of the beginner, the chances

are ten to one either that the tool is being asked to do something which is the work of another tool, or that it is not being properly guided and handled to enable it to produce the work expected.

Ask a saw to take off a very thin piece from the edge of a plank, and, unless guided by an expert who knows how to pet and persuade it to do something that "the other fellow ought to do," it will constantly fuss, it will whine, try to lie down on its job, and continually break off the thin edge as a reminder to the workman that "it's Plane's job."

Ask a plane to bite off half an inch at once from the edge of a plank, and it will instantly kick up its heels, bury its nose in the wood, and groan constantly, "Saw, Saw, Saw!"

In other words, the chances are that the fault lies with the workman and not with the tool.

This humanizing of each tool can be handled with great effect in the teaching of the sick, as with the teaching of the small boy, as an extra inducement toward proper handling of the tool. Instead of emphasizing the necessity of sawing exactly on the line drawn, for instance, the

author always suggests to his pupils that they help the saw to eat up the black line. In the first case, the pupil is merely endeavoring to saw straight, the need for which he does not as yet fully comprehend; in the second instance, he quite forgets that he is endeavoring to attain technical perfection, and tries to keep the teeth of the saw on the line merely to "eat it up." It is very surprising to find in how many instances a pupil improves rapidly when he ceases merely to plane a board and starts to "give Jack something to eat."

In a general course of training, of the many tools necessary, the plane is the first which should be given to the patient, because it has a general stimulative effect on the entire system, and in its simplest form brings no strain upon any particular point. It is, in addition, the safest tool in the carpenter's kit, and demands less strength, less co-ordination, less knowledge than any other for its functioning.

Assuming that, the patient should always be made to desire to perform the work before being asked to do it or before being given an opportunity of so doing.

At Consolation House the beginning of wood

work is made with the plane (Bailey No. 3), very sharp and in perfect condition, and with a selected seasoned spruce lath set up on edge and made rigid with a back-stop.¹

The instructor, having made the patient comfortable as an observer, talks consistently about the fourth dimension, the war, the temporary qualities of eggs, the final restoration of the Jews, and what not, meanwhile, quite obviously without effort, rolling curley shavings out of a plane. Experience has shown that in a very few moments the vast majority of patients desires to make shavings also. The patient allowed to make shavings has begun his re-education as a wood worker.²

After the patient has successfully "spoiled" two or three laths, the dose should be increased; and the two narrow edges having been cleanly

¹ Every possible assistance should be given to the patient, especially at the beginning of a new subject, in making the work as easy as possible, not so much on account of the work itself, as that the patient usually undertakes new work with the feeling—latent or expressed—that he cannot do it. Every time he finds that he can do it his self-confidence is increased; and to this end, every possible labor-saving device should be put at his disposal.

² Not for some time should the square, either as a tool or as an idea, be introduced. To the beginner the square is an entirely unnecessary, uninteresting, and useless tool; and, while it is quite properly one of the very fundamentals of trade-school training, it has no place in the teaching of the sick until the sick man realizes for himself that it is necessary.

planed, the lath should be laid flat. The teacher will observe not only that this immediately increases the dose more than four times, but that it demands a change in posture, that, whereas before one hand alone was sufficient to handle the plane, now both hands must be involved, owing to the fact that the nose of the plane must be pressed down in order to maintain its cutting edge in relation to the lath. Thus the theory of the diagonal position of the blade in relation to the wood is inevitably and reasonably presented to the patient; his body, instead of being erect, with his whole activity confined to the regular, reciprocating motion of one arm, is now changed to the twist of the body involving the action of both arms, of the hips, and particularly of the left knee (in the case of a right-handed man). The patient should be kept upon this exercise (planing laths) until a dozen or more are smooth, sweet, and clean—no attention being paid to the question of the square.

The next step in advancement is the saw. The experience of Consolation House is that, while without exception every patient has known what a saw is, and, while many patients

have known that there are two general classifications of saws—the cross-cut and the rip saw—not one has known the real difference between the two, or why each is used for its particular purpose. A few moments upon the essential differences existing between the rip saw and the cross-cut saw will be expended to excellent advantage with the sick man, as follows:

To be absurdly simple, the cross-cut saw cuts *across* the grain of the wood: the rip saw rips *with* the grain of the wood.

So far, this exposition is a joke! any fool could see that. Now let the teacher hold up the two saws lengthwise before the patient. The projection or “setting” of the teeth will at once be seen to be quite different. The teeth of the rip saw flare out—project—much further from the blade; and this is because wood cut with the grain tends to swell out, to return to its old position, so that, in order to keep the wood once sawn from squeezing up against the saw blade, the teeth of the rip saw must make a wider cut than is necessary for the teeth of the cross-cut saw to make. The teeth of the cross-cut saw project from the blade but very little;

and this is because wood does not shrink or strive to return to its old position when cut across the grain. Much enjoyment has been afforded many sick men by calling the rip saw the "hippopotamus" and the cross-cut saw the "rat."

Let us take now one of our laths, planed on four sides, and saw it in halves lengthwise with the "hippopotamus." Let us do this with two laths; and then, returning to our first lesson, let us plane the rough edges left by the rip saw, when our first lesson with the saw is completed.

Now, in order that the patient may be given a pleasant surprise in a moment, let us use the cross-cut saw upon the two pieces of half-laths already planed (this to be done without squaring); but, without bringing it to the patient's attention, and apparently carelessly sawing these laths anywhere, in reality let us saw them so the smaller piece will be about 20 inches in length. We now have eight sticks upon which the patient has expended (for a sick man) quite a considerable amount of energy and attention. Let us discover (*sic*) that if these pieces are screwed together (ac-

cording to Fig. 7) we shall have a neat little flower lattice which will be so very easy to put together, now that all the real work has already been done, and which, of course, we will proceed to do.

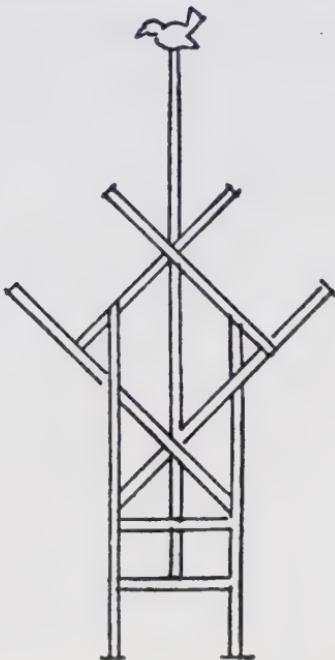


Fig. 7.

The fact that boring the holes and screwing the pieces together introduces entirely new motions should not be called to the attention of the patient. Screws rather than brads should be used because, by boring the holes

with the reciprocating drill, we are beginning the patient's training for a joiner's hammer, and, in addition, all drills seem to have a particular fascination for the sick man.

The reader has been cautioned several times against the use of the square. The result will now be apparent in the completed flower trellis, for even most patients, unacquainted with the technicalities of wood work, will see for themselves that the whole thing would have been much better had all of the sticks been of the same thickness, and the angles of the edges all alike; and it is easy now for the teacher to point out that the weak-kneed, wobbly tendency of the completed article would have been very considerably overcome had such been the case.

Now, because it is practically impossible even for the experienced workman to saw or to plane squarely without guidance, a simple little device called the try-square is used by all workmen to insure perfection. The patient in most cases will insist upon his ability to plane and to saw squarely without using the try-square; and the less experienced he is, the more sure he will be of this ability. A few days

spent in allowing him to try to prove it are well invested, as during that time he is not only exercising, not only endeavoring to saw and plane squarely, but also *convincing himself* of the necessity of the constant use of the try-square, without which he cannot go far.

The common spruce lath is all that is required in the way of material for some time.

There are endless varieties of flower trellises, lattices, etc., which can be used to great advantage in making the patient constantly practice without calling upon him for any work heavier than that already described.

The making of these trellises is excellent for another reason, in that it constantly returns the patient to the subject of drawing, for he should first be guided to make simple, single-lined sketches of the form of lattice he proposes to make, from which the teacher can easily persuade him to make full-sized drawings, carefully pointing out that every moment expended upon the excellence of his drawing results in a great saving of time and material when he comes to set up his trellis in the shop.

It may be objected that the saving or waste of material when applied to spruce lath is an

absurdity; but such is far from being the case with the sick man who, while he might scoff at the money cost of one lath, will instinctively adopt another attitude after he himself has sawed and planed it. In other words, the value to him is not the money value of the lath, but the value of his own labor which he has expended upon it.

If it is desirable to exercise one or both legs of the patient, for the development of the single half-lath, planed and sawed, ornamental flower sticks may be substituted for the trellis suggested. The commonest form of these (for which there is a very considerable sale) is butterflies and birds sawn out, gaily painted, and affixed to an upright. The small examples of these flower sticks are sawn out of $\frac{3}{8}$ or $\frac{1}{2}$ inch wood. They may be done by hand with the fret or coping saw, or, to exercise the legs, with the jig-saw.

The jig-saw is a machine of very considerable value and importance in the hospital shop. The strength and dexterity of the hands, the eyesight, and the co-ordination required are constant in almost all of the foot-power jigsaws.

The therapeutic value lies almost entirely in the form of treadle used, of which a number of quite different ones are upon the market. For instance, the action necessary to run the jig-saw may be confined practically to the ankle, may introduce the knee, or the hips, or any or all of them, and this upon either leg or both.

The primary object is not to induce the sick man to make something: it is to tempt and to teach him to do something which will necessitate such motions and activities as will be conducive to an improved condition. Invalid Occupation there may be in tempting or allowing the patient with a stiff right knee to run a jig-saw: Occupational Therapy cannot be conceived to have begun until the patient is endeavoring to break out, to limber up his stiff right leg, which on the jig-saw might be accomplished with a bicycle tread.

Of the many subdivisions of jig-saw work (brackets, clock-cases, etc., etc.), one of the most fascinating for the sick man is the picture puzzle. The picture puzzle has several advantages. The cost of materials is small. The finished product has a distinct value, though

most patients prefer to send their puzzles to friends as gifts than to sell the same, which in itself is an attitude of the greatest importance, for the patient desiring to do something for someone else is the most pliable, the most easily influenced by the teacher.

Consolation House is the proud possessor of a spotted dog sawn out and signed by Caran Dache. It is a most absurd little beastie which barks plaintively when tickled under his chin. We have found no instance in which this dog (as his name is Empedocles), after having caused a laugh from the patient upon whom he was taken to call, has not induced the patient to endeavor to use his legs on a jig-saw as a result of the visit. Consequently, Empedocles is regarded as a jig-saw "hypodermic."

But flower sticks, picture puzzles, and spotted dogs—unless the patient is to be trained especially for the making of such toys—must give place as soon as he is able and sufficiently proficient to advance toward more serious subjects of life and employment. A brief review of what the patient has already produced brings to light the card-board model of our cigar-box house; and it occurs to the teacher to sug-

gest to the patient (indirect suggestion always being preferable to direct suggestion) that it would be fun to make a house out of wood instead of card-board.

Now, because the card-board model was carefully made, it would be very easy (seemingly) if, after having taken it to pieces, each elevation and each side of the roof is used as a pattern from which to work in $\frac{1}{2}$ -inch wood. As the waste is slight, it is advisable to allow the patient to make the mistake of cutting out his wood exactly on the lines of his card-board model. He will be surprised, annoyed, and disgusted when, upon putting the sides together, he finds that his house is an inch longer or wider than his card-board model, and that his roof pieces do not match. The few cents wasted in the material are well made up by the extra care in his next endeavor, and by the fact that he has learned the lesson that the thickness of his material is a point which must be considered at the outset.

He will also be amazed now at the importance of his square.

A hole cut in one end of this house transforms it from a useless box to a bird-house.

Whether this hole should be cut with a fret saw or with an expansive bit depends entirely upon the quality of motion which the teacher desires to introduce.

The subject of bird-houses and birds is one which can hardly be too much recommended. Many patients, able to do nothing but sit in the sun, may be inoculated with the first germ of *desire to do* by being given an opera-glass with the request that they see:

First, how many birds come to a certain tree;
Second, what they appear to come to the tree for;

Third, what kind of birds they are;
Fourth, how to encourage and further tempt their presence.

An excellent book on this subject, one full of delightful and tempting suggestions for the sick man, is "Wild Bird Guests," by Ernest Harold Baynes (E. P. Dutton & Co., New York, 1915).

The bird-house idea is susceptible of many variations to meet the needs of the individual patient. For instance, the man who likes to go hunting can be fascinated and kept occupied for weeks with the construction of a "perfectly ideal" camping place. A lapboard is all that is

necessary for a site; a little modeling wax quickly forms a glade and a sheltering ledge of rock; a piece of tin-foil or a bit of glass makes a spring of crystal purity; a dozen evergreen twigs will cast a cool refreshing shade over the log cabin which will be constructed out of 1-inch branches. If the patient desires to spend the winter in the open, his fingers must again be busy with the modeling wax, for surely it will be worth while to build a rough stone fireplace for the lodge.

The psychologist will see the tremendous possibilities in the use of such an ideal model as an opiate. It has proved of great value in fighting morphin, several patients by concentrating upon their "dream come true" having been helped to forget their knees.

For the patient who is continually fretting about the condition of his baby girl, nothing is so fascinating as a doll's house; while the patient with a small boy is the easiest of all to handle.

There are so many wonderful and fascinating things which are well worth spending time upon, such as the mill which can be made to work by having fine dry sand fall upon a paddle-wheel, the generated power from which can

be transferred and transformed in endless fascinating ways, all of which suggest to the father more the fact that he is learning to teach his boy mechanics than that *he* himself is studying, or being taught anything.

But even this, useful and helpful though it is, must not fill more time than is advisable for recreation; and the next step, though involving no more work, and being apparently quite as trivial, is the first step in actual constructive re-education.

It is presumed at this point that the patient is still physically unable to handle or work upon timber of such size as is necessary for the construction of any actual building. The essential problem, therefore, is how to interest, instruct, and prepare him during this condition of physical weakness so that, when able to do actual work, the intermediate period of instruction and practice will have been profitable. To this end, this gap should be filled with the study of and practice in actual structural problems.

But our premise will not admit sufficient strength on the part of the patient to enable him to attack such structural problems. To meet the needs of the patient, under the as-

sumed condition, Consolation House has adopted a method of working "to scale." If the instruction given is to redound to the patient's later advantage, such instruction cannot be modified by any limitations or lack of ability on the part of the patient as such. To work to commercial advantage the patient must be able to work under commercial conditions and without any excuse, apology, or favoritism accorded to him as a "sick man." Therefore, any training in building construction, such as will be required for any individual attempting to take up abandoned farms, waste land, etc., must include, in addition to his bedside energies, a knowledge of how the instruction given to him in bed may be utilized after he has left his bed and endeavors to maintain himself.

There is, therefore, no point of actual construction, or of the methods necessary therefor, which can be overlooked in the bedside occupation without fundamental interference with the essential of the job in itself. To this end, the very important subject of joinery and construction in bed, to be of any value or of the greatest value, must involve all of the

energies, practices, and difficulties of actual construction out of doors.

But the making of even a small model structure can profitably be begun only after the pupil has been taught the subject of joinery. Joinery in bed is one of the most valuable studies in the re-educational curriculum; and if properly taught it is not only fascinating to the patient, but very beneficial.

For the development of this subject, and to overcome the many difficulties which result from the posture and disabilities of the patient, the "Consolation House Carpenter Shop" has been invented and assembled. This consists of a whittling tray fitted with a vise, bench-stop, and miter box so arranged as to fit the needs of a large number of disabilities. For satisfactorily holding the interest of the patient, the tools selected, while light and specially adapted to their peculiar uses, are and must be real tools and in no sense toys. The simple joinery problems of halving, sleaving, mortising, and tenoning, etc., are done at inch-and-a-half scale. When, after sufficient practice in this, the patient is able to stand and move about a table, the scale is changed to

3 inches to the foot, which, while it involves little strength, is still large enough to introduce all of the practical problems of full-sized work.

Both in order to remove the idea of play and to teach the pupil the true value of his study, all stock, materials, etc., are continually called by the name by which they are known in actual full-sized construction. Thus, in carpentry, we do not have "a stick"; we have "a sill," "a four-by-four," or "a six-by-six." The floor beams and rafters are again not "sticks," but are "two-by-sixes," "two-by-tens," etc. If we are afraid that our building will not be heavy enough to maintain its position upon our corner posts by its own weight, we do not "nail" or "screw" it in; rather, the screw which is used ceases to be called a screw and becomes a "4—" or a "6-inch screw-bolt." Pieces of a cigar-box cover cease to be such when brought "upon the job," and are "boarding" or "trim," as the case may be.

Even a very long convalescence can be profitably filled with the making of frame models. A piece of board larger than the projected structure must be accepted as that

part of the whole wide world upon which the patient is to energize. The frame line of the proposed structure must be outlined not with pencil upon the surface of the board, as in a drawing. It must be "set up" with strings and pins upon batter-boards (see frontispiece), as would be the case with an actual full-sized structure, if the patient is to be taught to build such an actual full-sized structure out of doors in the future. The holes in which the corner posts are to be placed will be "dug," to be sure, with a brace and bit instead of with a shovel and crow-bar; but they must be so "dug" as to allow for the shifting and placing of the post and its being blocked up with chips and glue according to the dimensions fixed by the strings on the batter-boards if the patient is to be expected to be able to perform a similar work full-size on the ground.

It should be carefully noted that, while the engineer, the architect, or the trade-school instructor will undoubtedly regard such a process as a joke, that such an attitude will only be the result of their experience in laying out a building upon the ground in health, and that, if the sick man in bed is made to set up a

corner post, a foundation, in the proper place, working from the strings of a batter-board, it may be a joke, but, at all events, he has an insight into how to proceed in the proper manner with a similar structure on the ground, which cannot be gained if he works with a square and pencil upon the level surface of a board.

It is necessary, however, to insist that every single detail shall be carried out in a like manner if the pupil is not to flunk the actual problem later. It is undoubtedly "silly" to make a patient in bed putter about with a 3-inch level unless we accept a knowledge of the use of the level as being the important factor in the pupil's study. The pupil who is careless in laying out his model building realizes later quite as inevitably as if working at full-size that to be "true, plumb, and square" it is quite impossible for him to shirk his square, and plumb, and level anywhere to the slightest degree; and, if this comes only when he finds to his intense disgust that his roof is "all wobbly," the knowledge at least has been gained with the smallest possible expense of either time, energy, or money.

One point in connection with these frame



Fig. 8.

models of which we feel very certain for the continued interest of the patient, especially in

view of his later progression to full-sized work (to carpentry), is that the earliest examples should be "lots of fun"; and this is true also of the later developments in carpentry. Figure 8 shows the type of structure first worked out to scale, and later, as the patient's strength increases, is built full-sized out of doors. This

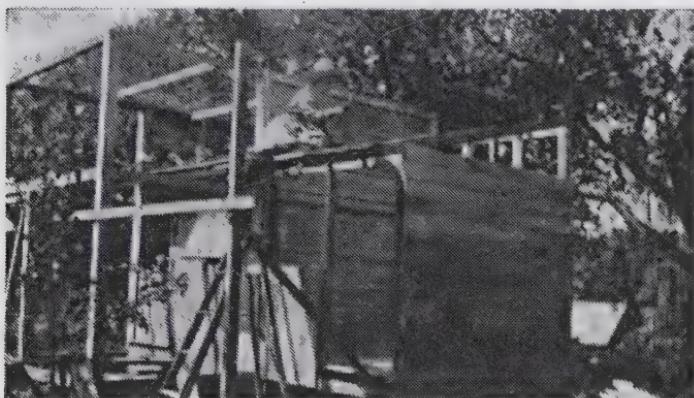


Fig. 9.

garden house illustrated represents the final examination in joinery of one Consolation House course. The illustration of the pigeon house (Fig. 9) might at first sight appeal to the trade-school instructor as being the one which should precede and not follow the garden house. Our experience has been that this is not so with the sick man. The work upon

the garden house requires less strength, and, being "lots more fun," keeps up the patient's interest and endeavor better than does the plainer and (in some ways) simpler poultry house.

The architect or the engineer who is merely amusing himself by making these models would be interested and satisfied with the attempt to set up a perfectly fitting truss; but the desire for such technical perfection should not be expected from a beginner in the subject, whose fundamental attitude is that everything is "near enough." With a structure like the garden house, the patient who has sawn out a rafter foot with great enthusiasm, but who has slighted his square when notching for the plate, is disgusted with the result which he sees to be that of his own carelessness, whereas, with the rafter of a poultry house, he is content to "just nail in a piece and let it go at that because no one will see it anyhow."

The step from a light structure like the garden house should be followed, in a progression toward carpentry, by some work involving the use of plain unornamented materials, such as the cold-frame shown in Fig. 10, which re-

quires care and thought, but has larger amounts of plain surfaces to be covered.

It may be interesting to note that the pigeon house illustrated was built by a pupil at Consolation House as a final examination in carpentry. This pupil was a young woman who at the beginning of her course was unable to



Fig. 10.

work in the shop without fatigue for more than two hours daily; and within three months her strength was so increased that she was able to work for six to eight hours a day in summer weather out of doors. The entire building was designed, drawn, estimated, and built within the estimate by her with practically no assistance, and is true, plumb, and square.

The pigeon house and the subject of squab raising we regard as being of very great value from the fact that, from the earliest days of convalescence, an interest in it is easily provoked and maintained.¹ The building makes a structural problem of almost perfect qualities for the sick man, and leaves as the result of his efforts an interesting hobby or a productive occupation very much worth his while.

What is true of pigeon breeding is to a greater or less extent true also of many lines of poultry, rabbits, etc., all of which form a highly valuable adjunct to, if they are not necessary for, the development of the land. The man with a little patch of ground, without knowledge or experience, and unless fortunately situated, stands a better chance to make good with a market garden if such is augmented with small stock.

By the time the patient is strong enough to repair his buildings and to construct small ones, he will be strong enough also to take up the work upon the land itself.

¹ For a further exposition of this subject the reader is referred to "The Therapeutic Value of Squab Raising" (Barton), *Trained Nurse and Hospital Review*, February, 1918.

It should be borne in mind that the job of the re-educational teacher is not to turn out her pupil an expert in the studies undertaken. This is practically impossible, for, to turn out the pupil sufficiently proficient to work in the normal world, it would be necessary to have that patient able to work with speed and under trade conditions; and this is impossible in a hospital shop where no trade conditions exist. The re-educational teacher, on the contrary, must select such an occupation and teach such an occupation to her patient that at the time of discharge the patient will have sufficient understanding of his job, and sufficient strength for it, so that when he does undertake it under commercial conditions he will have a fair opportunity to make good.



“ VICI ”



“VICI”

CONCLUSION

IN closing, the author feels the necessity of apologizing to the reader. The apology, however, is not so much for anything which has been written: it is more an apology for having even attempted to give within the confines of a book necessarily small even the outline of so complex a subject.

Any one who sincerely regards the subjects of Occupational Therapy and Re-education as sciences, which will be accepted as such by the future, cannot but hesitate before writing anything which cannot be definitely proved.

But, however such an attitude may be upheld, the history of these subjects has clearly shown how much humanity has lost from the fact that many students and workers along these lines in the past have failed to leave any comprehensive data regarding their own researches. The student of the subject finds many references to the work of So and So at such and such a place in such a generation;

but, alas, his efforts to learn anything definite concerning such are seldom if ever rewarded.

Today, with the needs emphasized so tremendously by the great war, seems like an excellent time for those of us who are devoting our lives to this science to discard the methods of our predecessors, and to make public for the assistance, the scrutiny, and the criticism of others our own observations and thoughts in order that the future may be richer not so much from our accomplishments as from our mistakes and failures.

Some time in the future will be granted a modicum of praise not only to the individuals who have overcome great disabilities, but to their teachers. Accomplishments of the Alva Bunkers and of the Helen Kellars will be accompanied by a brief word upon the equally heroic accomplishments of the Sullivans.¹

It has taken centuries of labor of the best minds of humanity—to say nothing of vast sums of money and many lives—to compile the modern pharmacopeia. There is no reason to suppose that the therapeutics of occupation

¹ Miss Sullivan, the teacher of Helen Kellar; Joe F. Sullivan, the teacher of Alva Bunker.

will require much less time, much less money, or fewer lives.

It seems unwise and unnecessary to include here pictures or descriptions of the hospital shops of Europe, especially as the public, perhaps rightly, always suspects the writer of having unduly emphasized the subject.

Through the kindness of a French collaborator Consolation House has in its possession a number of letters, printed here because they show at first hand not only the accomplishments of their writers, but such hopefulness and content as to be helpful to others.

“SOCIETY OF FRENCH POULTRY-GROWERS

“The Blind Soldiers and Poultry Culture.

“M. ——, Secretary, M. ——, Member of the Council, and M. ——, Treasurer of the Society of French Poultry-Growers, met on Thursday, June 15th, at the School of Poultry-Growing at —— to judge of the results obtained by two men blinded in the war after two months at the school.

“*Incubation.*—They have agreed that if he wills, a blind man can carry on the operations

of breeding domestic poultry almost like one who sees.

“The blind man can manage an incubator and carry on the operations concerning the eggs. After a certain amount of practice, he easily recognizes those that are bad, because they do not keep the same heat. He can tell merely by touching the degree of heat of the incubator.

“The only difficulty is in the *mirage*¹ of the eggs. But as this operation is done only at the end of the fifth or sixth day, and as it only lasts, for the drawers of an incubator, about half an hour out of the twenty-one days of incubation, the blind man can easily get the assistance of one who sees.

“Further, the blind man after longer experience will get so that he can from the fifth day recognize the bad eggs by weight only, or by the feeling of them, the shiny eggs being good, while dull ones are generally bad. As for that, many who see don’t bother much with this matter, but leave the bad eggs in the incubator until the end of the time.

¹ We have been able to find no English equivalent for this term, but presume it to mean what is commonly called “candling” in this country.

“*Breeder*.—A blind man can do all the work necessary for the breeder.

“*Food*.—He can prepare food without difficulty.

“*Gavage*.—Concerning *gavage*, he can easily proceed with it.

“*Bringing-up*.—He recognizes the age of the young cocks very nearly by the intonation of their crowing. With practice he will arrive at statements which will surprise many who can see.

“So far as care of those who are grown, he will find that very easy, except in case of sickness. Then he must have the assistance of some one who sees.

“On the whole, it is clear that a blind man cannot live alone, and the person or persons with sight who are near him must always look over his work from time to time. It is not impossible that he may from time to time make mistakes; but who is the man with his eyesight who has never made a mistake with poultry?

“The two blind men at the School at —— are so well content with their results that both have hired a little farm in the neighborhood

where they intend to devote themselves, with their wives, to poultry-breeding. They declare that they find much sweetness in the chirping of the little chickens. They have, besides, become very gay since they felt able to do some work.

"To the members of the Society's Commission it was a profound satisfaction to note the joy of these two blind men in receiving, each one, from the Society of French Poultry-Growers 50 chickens of M. _____ and 2 young silver females *argentées de champagne*. The young rabbits received from the worthy fellows many caresses and kisses, of which they seemed duly sensible, in letting themselves be handled quietly.

"Therefore, we congratulate the members of the Association _____, especially Mme. _____ and M. _____, and the directors of the Society of French Poultry-Growers, inspired by their president, M. _____, Minister of Agriculture, for having tried this experiment, and we thank the professors of the School at _____, Mme. _____, and M. _____ for having directed their pupils so well."

“————— July 7, 1916.

“Dear Sir:

“I do not want to delay letting you know that we have settled matters with the notary. He has remitted to us the balance which will help us to buy a cow. There is a good chance to get two if it were possible; but cows are very dear—you have to pay 500 francs if not more for a good milch cow. I beg you to believe, dear sir, that I am glad to tell you that I think I shall be very happy when I am settled in this little farm. I am glad to tell you that we shall finish getting in our hay today if the weather is clear. I turned it all the time with my wife and my children. One of my little girls who is nine years old helped me drive and I was happy at being able to take up my old occupation again as I used to do in the time when I was a hired man in the country; that recalled to me the time before the war when I had my two eyes.

“A very good day to you and thanks to all the kind people who take an interest in us, for I tell you, sir, all our little children are working with courage. This pleases them

greatly and they will be more comfortable here in the country than in the city.

“With respects to you and those who are with you,

(Signed) _____”

“_____ May 3, 1916.

“M. _____,

“Dear Sir:

“I dare to hope that you will excuse me for having so long delayed in giving you my news, which is at the present moment very good. I waited until I should have commenced my work and until I should have accounted to myself a bit before writing you any details.

“I am happy to be able to announce to you that this is possible to do despite our condition—with persistence one can get on without special materials, quite like one who can see.

“When I arrived at the school they showed me at once an incubator and the handling of the eggs. What was my astonishment, after having felt the warmth of the incubator, to find by the sense of touch alone, among about 50 eggs which the professor declared good,

one which seemed to me suspicious; the egg was sacrificed, broken, and was, in fact, bad. The next day I discovered another. So I can affirm that that is one of the essential points in breeding—the degree of heat which must be maintained for good results, and it seems to me possible to tell that very well by no other means than touching.

“As to the care of grown fowl, that is absolutely nothing, except in case of sickness (a thing which I have not yet learned). They confided to me a few days ago about a hundred little fellows hatched that very morning; up to now I have had only four deaths, two of which were crippled at birth. These are the little *aléas* of the business, but that does not discourage me at all; quite the contrary, for there is such a sweetness in their chirpings that one forgets little accidents which are, after all, insignificant.

“The only thing where, I believe, we cannot get on without sight is in the *mirage* of the eggs, which is an essential. It is only done at the end of the fifth or sixth day that they are in the incubator, and the process only takes about half an hour out of the whole twenty-

one days of incubation. As you can see, this is the point of the greatest difficulty.

"I think that I may assure you that in future the business of poultry breeding for people in our condition assisted by a person who can see is an accomplished thing. I dare to hope that this little letter of mine finds you in good health, and also Mme. ——, to whom you take our greetings.

"With a cordial handshake and hopes of hearing from you,

"Your devoted servant,

(Signed) _____"

"_____ June 19, 1916.

"M. ——

"Please excuse us for delaying to send you news of us—the news is still very good. We waited so as to give you the results of our second hatching, which is now finished. We took out 171 very vigorous little chicks, and 2 lame ones, on 237 eggs put in the incubator. We are well satisfied with this result, for our average is 60 per cent., including unfertile eggs, which is very reasonable.

"Thursday we were visited by three gentle-

men from the Society of French Poultry-Growers. They seemed quite content with the progress I had made since my arrival at the school. And on my part I was very much pleased, for one of these gentlemen made me a present of two pretty rabbits of the silvered kind from Champagne, which gave me great pleasure, for I had wished to add some rabbits and some ducks to my breeding, and here already I have my rabbits. These gentlemen came and visited our little cottage and told me that they were enchanted with it, that the location was splendid for success in my little breeding. So I see that I was lucky and wise in engaging the little house.

“M. ——, I will tell you that we have done as was agreed after receiving information in regard to packing, moving away, transport, and moving in; that cost ten times more than the whole was worth. So we have firmly decided to get along without the furniture, as we are doing at present. When we get out of the school we will go back to Paris for the rest of the property and a few little things.

“Now that my hatching is done I have a moment to give to my Braille.

“I have nothing more to say at present but that I hope you are still in good health and also Mme. ——, to whom please give our greetings.

“Accept, dear sir, our respects and our heartiest thanks. Mme. —— joins me in shaking your hand most cordially,

“Your devoted servant,

(Signed) —————”

“Paris, June 23, 1916.

“M. ——:

“I have just received your kind letter which has profoundly touched us—my wife and I—when we see with what generous kindness you reward our little efforts. Be assured, sir, that we shall never forget it, and we ask you to be kind enough to send to the good and charitable person our most sincere thanks and our greatest devotion. We ask you to let us know beforehand the date when we can move; I think that it would be well to begin a few days earlier, for I have been told that the railroad would take several days before delivering our goods. Before leaving school on July 25th

next we thought of going to Paris to get the rest of our little things and to stay a few days to finish everything up, and returning to —— the first of August, when we should be very happy to go directly to our little cottage, the house being free; and having several hours at my disposal every day, I could establish us little by little until the date of leaving the school. The owners are very accommodating, our rent would not begin until August 1st. We have already begun the garden, my wife and I; we have turned all the sod, and turned it in, and we have already in one corner stuck some cabbages and sown some seed. We shall go on till the end of this week, if the weather permits, turning over and sowing the rest of the garden. Next week I intend to arrange two hutches for my two fine rabbits who will enter their apartments the same day as their masters—as well as my 50 little devils of *Faverolles*, who already are giving me trouble and pricking my fingers, which the gentlemen who came to see us Thursday have kindly offered us.

“We close our note, hoping that it will find you in good health and we send you our hearty

thanks. Mme. —— joins me in shaking you cordially by the hand.

“Your devoted servant,

(Signed) ——————”

“————— June 5, 1916.

“Sir: I am deeply touched by the interest which the Association —————— takes in me, and I am going to try to give you some details about my work. I must tell you first that I have only a very small property, and when I wished to cultivate it again instead of learning a trade it was because in the country a blind man enjoys more independence than in the city. I can trot about my little jobs, go and come, go out alone, go out without a guide, and, what is still more important, life is less expensive. I will not conceal from you nevertheless that at first I experienced a great disillusion, for in thought I saw all my work, but when it came to executing it, it was another matter, my fingers had not yet the sensitiveness and skill which they have today.

“Picking beets was my first work. Then I dug ditches along the rows of vines in which

to bury the manure; I made holes to put back trees and roots of vines. I can dig. I made myself the nursery of vines for next year. I pruned some of my trees, peaches and apricots; I was perfectly sure which branches I had to cut and which to leave and what form I was giving the tree. Every day I fork over a little fodder for my rabbits, a few of which I am breeding. At this moment I am busy tying up the vines, which I do very well. In about three weeks they will cut the grain and I think I shall be able to make sheaves and to tie them. Indoors on a large farm a blind man can make himself very useful in caring for animals; he can give them their food. I myself care for my own horse, and although he is young and a little fiery, I am not at all afraid. I am busy in the cellar; I draw off my wine and put it into bottles. I cut wood and I can do a lot of little jobs which, taken altogether, are very useful.

“So to all my fellow farmers who have been stricken blind like me I give advice to go back to the fields. They will find much work there without too great a change of life.

“I propose this winter, when the weather

is bad and I cannot go out, to learn Braille, but now it is too fine to stay indoors.

“Respectfully,
(Signed) _____”

“_____ July 10, 1916.

“Sir: I am deeply touched by the interest which the Association takes in me, and their kind intentions for me have but increased my own courage and my taste for agriculture. I do not wish to increase my little property. In general, when one hires land, the land is almost uncultivated and ruined, and much labor and manure is necessary to put it in condition. Then when one has succeeded in getting it into a good state the lease always runs out and one has to leave it. But when I can I shall increase mine by buying the share of one of my sisters which forms but one holding with mine, and which will make my work much easier.

“For the time being I am going to try intensive culture, double crops on the same lot of land, without too much increasing labor, which is very dear. For that I need a certain amount of fertilizer which my modest pension does not

permit me to buy. So, if the Association is already to help me, it can help me best at the moment by purchase of manure. In your letter before the last, sir, you gave me the addresses of several blind soldiers asking me to enter into communication with them, to encourage them, and to tell them what a blind man can still do at our work. I was not able to write to them at once because I was very busy at the time with the last work in the vineyard and the harvesting. Now that work is less pressing, I am going to write to them all, giving them details about what I am doing and explaining to them what they can do themselves. I shall be glad to convince them not only that they can be very useful but also that they can earn their living.

“Respectfully,
(Signed) _____”

“_____ June 25, 1916.

“M., the General Treasurer of the Association _____:

“I wish to let you know that the handling of the mowing machine is very easy and I succeed in doing a little with it where there is

no ditch; but my wife works with it very easily. It is a good machine and I am very glad to have it. I thank you with all my heart for giving me such help.

“Accept my most sincere thanks.

(Signed) _____”

“_____ June 24, 1916.

“Dear Sir:

“I have received the index and the piece of bread in good condition. Thanks, I shall have to exercise my patience; but I hope to succeed in reading the *abrégé* as well as the Braille. I am going to tell you some of the work I have done since I left the hospital March 20, 1915. In the house I carry the wood and water needed for the housework. I take care of the beasts, give them food, milk them, help in harnessing and unharnessing. During harvest I make bands, tie up sheaves, help load and unload. I carry grain to the granary, I gather grapes with other grape gatherers. I pick over the grapes, help to put them in the cellar. I help to draw the wine from the vats, carry the *comporte*, clean the vats. I make fagots, help tie up billets of wood, and tie up small ones

myself. I work the land to sow seeds for the kitchen garden vegetables. These are some of the tasks I have done. In doing them I work slowly, always hoping to do better, and I think that the blind farmer can render service on the farm where he knows the customs. The name of the blind man of whom I spoke to you is as follows: _____, from the same place as I. I see him often and I have told him of your desire.

“Again, thanks for the package. With respectful salutations,

(Signed) _____”

With the daily press and the magazines overflowing with illustrations of what the crippled of war are accomplishing for self-support, it is easy to overlook the less spectacular but no less important activities of the crippled of peace in the same line. At the beginning of this book we quoted a distinguished German as having made the rather astounding statement that there were no more cripples except of the will; and, in order that the reader may realize that this condition applies already not only to our enemies, but is susceptible somewhat of



Fig. 11.—An American UNCRIPPLED in his will. (Courtesy of "Michigan Hospital School Journal.")

proof within our gates, we give here by special permission the story and picture of an American *uncrippled* in his will (Fig. 11).

This young man, Alva Bunker, of the Michigan Hospital School, was born armless and legless, but uncrippled in his will, as shown in his remarkable achievements, one of which—his rabbit “mansion”—is shown in Fig. 12.

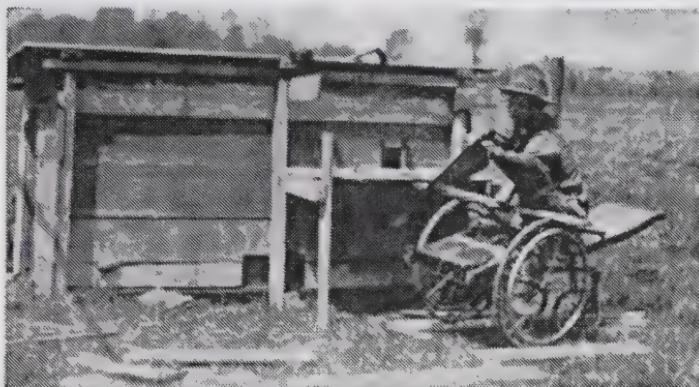


Fig. 12.—The Rabbit “mansion” that Alva built. (Courtesy of “Michigan Hospital School Journal.”)

“Ever since he has been in the Michigan Hospital School he has been building ‘automobiles’ out of old wheels from coaster wagons, ‘wind-mills,’ ‘velocipedes,’ and the like. In fact, his first ‘wooden leg’ was made by him two years ago. But it was only after he had

undergone a double amputation and was waiting for his stumps to heal so that he could be fitted with his new limbs that he decided to go into the rabbit business. The first thing that confronted him was the need of a house in which to keep the rabbits, which he hoped to secure in some way. So he set out to work on the house, or 'mansion'; and with the hammer, hatchet, and saw the structure soon began to rise. He was engaged in building the 'sun porch' when the staff photographer for the Detroit News happened along and snapped the picture shown here. The readers will carefully note how he did the sawing without hands and feet. Since the picture was taken the 'sun parlor,' together with many other 'distinct features,' has been completed."

Does not this remarkable example bear out the statement that there are no more cripples except of the will?

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